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STUDIES OF HUMAN RELATIONS IN THE TEACHING-LEARNING PROCESS.

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THE EDUCATION OF TEACHERS IN THE METHODS AND TECHNIQUES OF EFFECTIVE GROUP MEMBERSHIP WAS THE FOCAL POINT OF THE RESEARCH PROJECT. EVALUATION STUDIES WERE ACCOMPLISHED USING LABORATORY TRAINING EXPERIMENTS IN THE AREA OF HUMAN RELATIONS. SOME 60 TEACHERS PARTICIPATED, DIVIDED INTO AN EXPERIMENTAL GROUP FOR LABORATORY WORKSHOPS AND A CONTROL GROUP. STEPS OF PRETRAINING, LABORATORY TRAINING FOR THE FORMER GROUP, AND POST-TRAINING WERE USED FOR COLLECTING PERTINENT DATA. INNOVATIVE ACTION WAS REPRESENTED BY THIS PROJECT FROM THE FOLLOWING STANDPOINTS--(1) IN THE MEASUREMENT OF TEACHER EFFECTIVENESS IN THE AREAS OF SOCIAL-EMOTIONAL CLIMATE OF THE CLASSROOM AND THE SOCIAL SKILLS OF THE CHILDREN, (2) IN THE APPLICATION OF A METHOD OF LEARNING WHICH COULD UPGRADE THESE TEACHER SKILLS, (3) IN PREDICTING WHICH TEACHERS COULD MOST LIKELY PROFIT FROM THIS TYPE OF LEARNING EXPERIENCE, AND (4) IN INCREASING UNDERSTANDING OF THE NATURE OF EFFECTIVE TEACHING. THE REPORT CONCLUDED THAT THE RESULTS OF THE PROJECT COULD ADD SIGNIFICANTLY TO MANY DIFFERENT ASPECTS OF EDUCATION. (JH)

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Studies of Human Relations in the Teaching-Learning Process

NORMAN D. BOWERS • ROBERT S. SOAR

V. Final Report: Evaluation of Laboratory Human Relations Training for Classroom Teachers

A PROJECT SUPPORTED BY THE COOPERATIVE RESEARCH PROGRAM
U.S. OFFICE OF EDUCATION

ERRATA

Page 72. Line 16: ($P < .10$)

Page 138. Lines 2 and 3: ". . . , the experimental teachers
did not change significantly."

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STUDIES OF HUMAN RELATIONS IN THE
TEACHING-LEARNING PROCESS

Cooperative Research Project No. 469

Norman D. Bowers and Robert S. Soar
Co-Investigators

V. Final Report:

EVALUATION OF LABORATORY HUMAN RELATIONS
TRAINING FOR CLASSROOM TEACHERS

The research reported herein was performed pursuant to Contract No. 8143 with the Cooperative Research Branch, United States Office of Education, Department of Health, Education, and Welfare.

Chapel Hill
North Carolina

Columbia
South Carolina

1961

PREFACE

Day-to-day successful living is dependent on effective group membership. Almost every conscious living moment is spent in participation in some kind of a group. An individual is constantly required to be an effective group member--at his home and with his family, in the community where he resides, and at his place of employment. Responsibilities as a group member have become so numerous and demanding that at the moment, ours might be termed the "generation of the conference." Thinking, discussing, and acting as an effective group member has become a skill which is necessary to successful living in our modern world.

Responsibility for teaching effective group membership to students has been accepted by the public schools. However, little research has dealt with the education of teachers in the methods and techniques of effective group membership. How do teachers themselves learn to be effective group members? Is skill in human relations related to effective teaching of this skill? What is the relationship between teacher skills in human relations, and the human relations skills which a teacher develops in her pupils? Does laboratory training in human relations accomplish any changes in teacher or pupil behavior? Broadly conceived, it was the intent of the present study to offer information about these questions.

But we knew that the data to supply some answers would be subtle and elusive to measure. If the effect of the major variable (the training) could be demonstrated, it was apparent that we needed to use all feasible controls, and to eliminate statistically as much irrelevant variance as possible in order to refine the basic measurements. It seemed important to collect information about the teacher that ranged from his attitudes and personality characteristics through his classroom and out-of-school activities to the behaviors and skills of his pupils. Change in the last of these is an ultimate goal of education, and although we were perhaps overly optimistic that three weeks of laboratory training in human relations for the teacher could influence this variable, such was our hope.

Here then is the end product of our effort. Hypotheses, procedures, analyses of data have been collected in some effort to supply the evaluation originally planned. A central focus of this research has been to measure change in the actual classroom behavior of teachers and the skills of their pupils. To us, this emphasis is a critical issue in

educational research which warrants more attention than it has been given. We hope that educators will be interested in what is presented, and that some will find direction in trying to solve the ever present problem of increasing the quality of teaching and learning in our schools.

Norman D. Bowers and Robert S. Soar
Co-Investigators

January, 1961

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In addition to the usual support for research, Vanderbilt University contributed funds for tuition-free credit for the teachers who participated in the project. George Peabody College for Teachers made possible course credit for the training given in the summer workshops. We wonder whether this unusual relationship between universities may not be without precedent in the annals of educational research--a situation in which two staff members of one university have carried out an experimental educational program which has been given formal course credit by a different university. Special thanks are due Dr. E. L. Lindman, of George Peabody College for Teachers, for the arrangement of this feat. The major portion of the financial support of the project was supplied by the Cooperative Research Program of the U. S. Office of Education, Department of Health, Education, and Welfare.

Very special thanks are due to the data collection and analysis team--Mrs. Leota Dunn, Dr. Leo Rippey, Jr., Mrs. Frances Russell, Mrs. Ruth Soar, and Mrs. Frances Thomson. Their involvement in, understanding of, and enthusiasm for the central work of the project has taken much of the load from the shoulders of the investigators and contributed greatly to the quality of the result. Dr. Thomas Van Loon participated as a trainer during the first training session, and offered encouragement and assistance in work with teachers. Dr. Mary W. Bowers and Mrs. Ruth M. Soar have given encouragement, and editorial advice, and Dr. Cyril J. Hoyt gave valuable assistance in formulating the statistical analyses. The help of Mrs. Mary England has been so important to the project from its earliest inception in converting the jottings and scribbles of the investigators into readable copy, and in helping in so many other ways, that it would be folly to enumerate them.

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CHAPTER I

INTRODUCTION

Two general ideas were basic to the formulation of this study. The first was a conviction that the classroom in which the most effective pupil learning takes place is one in which pupils share with each other and the teacher responsibility for planning and directing the work of the classroom. The second was that teachers need specific skills to conduct such a classroom, and that procedures for teaching these skills now exist. The project is a test of the effectiveness of methods for conveying these skills.

An Ideal of Teaching

Probably a visitor to a number of primary classes who then visited the upper grades, would feel a difference, and with the difference a sense of loss. Interest, willingness, spontaneity, enthusiasm--these are ingredients that permeate many lower elementary classrooms. However, all too often there is a subtle change in the atmosphere of the upper grades--an atmosphere of passive resistance, if not hostility, a feeling not of spontaneity, openness and freedom, but rather of pent-up tensions waiting for an outlet. At worst, there is the feeling of a running, guerilla warfare between teacher and class, with each covertly watching for an opportunity to gain the upper hand.

While this contrast may be overdrawn, educators agree that elements often exist in the transition from the lower to the higher grades. Teachers at upper grade levels often lament the fact that their

students do not have the traits of spontaneity and enthusiasm which pupils bring with them when they enter school. To the reasonable question, "Why is this?" one answer would seem to be that it is a consequence of teacher-pupil relationship within the educative process.

One of the ideas basic to this study, then is that this change need not come about--that the classroom atmosphere might be such that all of the positive elements of the relationships between teacher and pupils when they first enter school might be maintained, augmented and capitalised on with the passing of the years.

Fast research has pointed to some of the advantages that might come from this kind of relationship. The Lippett & White studies (1947) illustrated the motivational effect on groups of a democratic leadership climate. Children's groups led by democratic procedures were found to be essentially as productive as those led by autocratic procedures, but without the cost of tension, frustration and aggression that accompanied autocratic leadership. In addition, there were other strengths to be found in the democratically led group--the ability to build standards of their own by which they evaluated their own behavior and products; the ability to reject evaluations which were not in line with those the group had built as its own. With adults, the Coch and French study (1948) illustrated the extreme motivational effects attendant on participative decision making. Although workers in a clothing industry increased output in a way which sounds like Alice in Wonderland, the results are well documented. Ideally, this motivation based on group involvement should be central to the work of teachers and pupils in the classroom.

Although such ideas have been commonly accepted by educators, the ideals have suffered criticism from some teachers, parents, and others antagonistic to public education. This criticism has come as a consequence of failure of attainment of these ideals. In some cases, there has been failure of the pupils to learn the essentials which an educated person ought to have. There have been examples of freedom without responsibility--classrooms in which little learning of any sort appeared to be taking place. On the other hand, there are instances in which very positive results seem to have come from similar ideals. There is, for example, a report of an experiment in an ungraded school (Turner, 1937), in which youngsters from four to six and a half built for themselves an orderly classroom society, and learned self-government through experience. And there are industrial applications of the same procedures in which there has been no freedom of decision as to "what" shall be done, but only as to "how" it shall be done.

Another aspect of this basic ideal of teaching was that learning democratic skills and ideals by the pupil is an important goal of education (Kearney, 1933). But with this ideal commonly accepted, we have the paradox of classrooms typically dominated by the teacher in highly autocratic fashion. This paradox then is a major concern of this study--our society holds the schools responsible for teaching democratic ideals and skills; the communication, that is, of our democratic culture--but the agency whose responsibility it is to communicate these ideals is often itself autocratically organized and administered. If it is true that children learn by experience, it seems curious indeed that the vehicle

through which they are presumed to learn democratic procedures should itself be autocratic in operation.

An Experimental Educational Experience

The other basic idea of the project is that a method now exists for teachers to learn to work together in democratic fashion with their pupils. Implicit in this is the idea that the ideals and values discussed above are appropriate, have always been appropriate, but have sometimes failed attainment because teachers lacked the skills to implement them. Laboratory training in human relations skills, or group development skills of the kind developed by the National Training Laboratory (Chase, 1967) is hypothesized as a way to reach these goals. This training provides experiences which, through the analysis of one's own feelings, perceptions and skills, a person may gain new understanding and develop new skills in work with others. This training has been widely adopted by industry, churches, public health, volunteer organizations, and numbers of others who must do their work through groups (Dubin, 1960). Studies have demonstrated the increased effectiveness of leaders trained by these procedures. For example, trained supervisors in industry have shown increases in task efficiency, job satisfaction, and awareness of the personal problems of workers under them. Subordinates tend to see trained supervisors more favorably after the training (Maier, 1962).

School administrators who have been trained by these procedures encouraged more participation in staff meetings, were more understanding, more democratic in operation, and were seen as more likeable, better accepted, and more responsible by their colleagues. Other changes seen

by colleagues were fewer angry outbursts, increased effort at understanding, encouragement of more active participation by staff and more encouragement of suggestions. The findings suggest a general pattern of movement away from autocratic and toward democratic procedures (Ginsbe, 1954).

While teachers have fairly often participated in the training offered by the National Training Laboratory, the results have not been studied systematically. It seems reasonable that training which brings about changes such as those attributed to administrators in other settings might bring about similarly favorable changes in the behavior of the teacher--the classroom administrator. The hypothesis is further supported by the parallel between the ideal of teaching, and the rationale of the training.

Central elements of the training are:

1. Learning through experience rather than through communication of content.

It is generally accepted that behavior that is rooted in attitudes and beliefs does not change as a consequence of communication of information. It changes as a consequence of change of attitude, and attitudes are not necessarily changed by information.

2. Increased awareness of one's own behavior as seen by others and the importance of this behavior in the situation of which one is part.

In order to be maximally effective in work with others, and in order to gain the effect he desires, a person must be aware of the impact he is creating.

3. Opportunity to practice skills in a "safe" environment.

Most teachers probably have highly democratic ideals for their own classrooms, but fail to implement them, either

for lack of understanding of the way in which they work with pupils or for the lack of the skill to do otherwise. This skill can only be acquired by practice, and can only be practiced in a situation in which no serious consequences will follow mistakes. Further, the skills will not be transferred to a real-life setting until they have been practiced to a degree that the person feels confident in their use.

4. Increased understanding of and sensitivity to forces at work in individuals and groups.

There is always more to be seen in any group from which to understand its operation than any one is likely to realize. But we can learn to see more by looking for it, and we can learn to understand it better. Both increase effectiveness.

The Study

This study, then, is an experimental test of the hypothesis that laboratory human relations training offers the means of implementing educational goals and ideals. A basic tenet of the research is that many teachers, dedicated and well-meaning, do not wish to teach autocratically, but do so either for lack of understanding or the skill to do otherwise.

"Materials and Methods" of subject matter learning are taught to teachers in a variety of content areas, but there is no "Materials and Methods" for work with groups. Yet the latter is almost certainly the most difficult subject of all. The thesis to be tested is that training similar to that offered by the National Training Laboratory can serve as such a "Materials and Methods" course, and that it will result in measurable change in the behavior of the teacher in the classroom and in the democratic problem-solving skills of the pupils and teachers.

CHAPTER II

BACKGROUND OF THE PROBLEM

The introductory chapter has outlined the principle bases on which this project rests. This chapter will cite evidence for the need for change in contemporary classroom procedures, and will treat selected aspects of the classroom ideal intensively, rather than presenting an extensive listing of authors who have dealt with this problem. Finally, representative findings from the application of this experimental training procedure to leaders in industry and education will be presented.

The Contemporary Classroom

Although there are differences of opinion on the nature of the ideal classroom, there is probably more agreement on what this classroom is like than there is agreement between actual classrooms and the ideal. This point is emphasized by the findings of Hughes and associates (1959). From a series of recorded observations of actual teaching by teachers chosen as good, they summarized (1959, pp. 289-295),

The most conclusive and pervasive functions performed by the teachers were in the category of 'Controlling'. The teachers directed the children in what they should do and how they should do it; what they should answer and how they should answer. The extent to which children can explore ideas, reach out in their experience and on their own, is very limited under controls of the kind presently exercised. In approximately two-thirds of the 129 records, the control functions performed by the teachers exceeded forty per cent of all teaching acts Teachers also control through the use of functions of Negative Affectivity; that is, with the use of reprimands, admonishments, threats and accusations A significant finding reviewed the teacher's low use of Functions That Develop Content. From our frame of reference this means response to the data which children place in the situation More importantly, however, this also means

the kinds of responses from teachers which seek the expansion and association of ideas, which ask for comparisons and inferences, which relate to personal experience and opinion. It is through such interactions that children are invited to use a variety of mental processes.

Three-fourths of the 129 records examined contained functions in this category (Functions That Develop Content) amounting to less than 20 per cent of the total functions performed by teachers. This fact takes on added meaning when we see that this category includes those acts in which the teacher serves as a resource to the child's questions, and the teaching acts of evaluation. ---

It was possible to group the three Categories of Controlling Functions, Teacher Imposition, and Functions of Negative Affectivity as a Dominative Behavior Index. The Functions that Develop Content, Personal Response and Positive Affectivity were grouped as an Integrative Behavior Index.

The excessive use of Dominant Functions were demonstrated by the fact that 80 per cent of all records showed that the teachers were dominative in over 50 per cent of their total teaching acts

Approximately three-fourths of the teachers had forty or less per cent of their total teaching acts integrative

A definition of good teaching within our framework of functions performed in the classroom, requires a reduction in the number of Controlling Functions performed. The power component of the teacher should be ameliorated with the overt statement (Public Criteria) of the reason for a direction or command. Reduction of the Controlling Functions does not mean the teacher is less responsible for the teacher-learner situation as one properly managed for the business of learning. It does mean more efficient management and more opportunities for children to become increasingly responsible for their own learning. No one can learn for another.

These findings seem quite clear-cut in their implications. Despite agreement on the desirability of pupil participation in planning and pupil responsibility for classroom behavior, this study indicates that this goal is not met in practice.

Practice does not agree with theory. There is need for change.¹

What is the nature of this ideal toward which change should be directed?

An Ideal of Education

This is a topic on which endless writings have been published; only a few representative contemporary authors will be cited.²

Trow (1960) in an evaluation of the place of group processes in contemporary education comments,

. . . If group processes are to be effectively handled, the teacher's pattern of control cannot be overbearingly authoritarian. He must be a democratic strategist. . . .

Project methods may fail because of the unskillful handling of group procedures. Students' ways of relieving tensions may not be recognized as such and their behavior may therefore be misinterpreted. And in general the group climate or style of group life, which is largely under the control of the teacher, can have important influences on members' personalities. One such style of group life can develop hostile attitudes; another, confused and purposeless drifters; and still another, cooperative purposeful personalities.

1. For a summary of the issues, see Mouly (1960, Chapter 18). For summaries of objectives, see Kearney (1953) and the Mid-Century Committee on Outcomes in Elementary Education (1953). For an evaluation of pupil-centered classroom procedures, and discussion of classroom dynamics, see the entire March (1958) Phi Delta Kappan, and the October and November (1951) issues of J. Educ. Res. More general discussions may be found in Benne and Muntyan (1951), Cunningham (1951), Thelen (1954), and the Forty-Ninth and Fifty-Ninth N.S.S.E. Yearbooks (1950, Pt. 1, and 1960, Pt. 2).

An introductory discussion of the application of research findings in group process to the elementary classroom is presented by Smith (1959).

Reviews of group process research relevant to education may be found in Benne and Levit (1953), Horowitz (1953), and the October (1959) Rev. Educ. Res.

2. For a longer view of pertinent research, see Rippy (1960, Ch. 2).

Anderson (1959), in describing an emotional climate which fosters the development of creativity, contrasts two modes of personal interaction which may represent poles of classroom climate:

Socially Integrative Behavior

The Creative Growth Circle

The socially propitious human environment as it concerns human interacting is a mutually accepting circular phenomenon.

If one human being tends to make a propitious environment for another, the other tends to make a propitious environment for the one.

If one tends to work with another, the other tends to work with the one.

If one tends to listen to another, tries to understand him, to learn from him, the other tends to listen to the one, to try to understand him, to learn from him.

This kind of propitious, accepting, non-threatening, non-conflictual relating constitutes a growth circle in interacting.

Socially-integrative behavior increases two-way communication, increases understanding.

It is in this positive accepting non-threatening relating with one's environment that are found the positive emotions mentioned by poets and psychologists.

Domination

The Vicious Circle

Domination is found in schoolrooms, families and factories. It has been a conspicuous part of international diplomacy of all time.

In the psychology of human behavior all uses of force, coercion, domination, shame, blame, guilt had one effect; the stifling of the creative process, the annihilation of originality. This is the environmental degrading of the quality of behavior.

No matter what social justification there may be for momentary use of domination, without more than domination the effect is the same.

The anticipated reaction to domination is resistance.

Aggression meets aggression; that is, domination incites resistance as long as it is "safe" to resist. Within this range domination sets up a vicious circle of interacting.

If . . . domination is so great that it is not safe to resist, domination will produce ambiguous, vacillating, unstructured confused relating.

Delight, joy, enthusiasm, ecstasy are associated with experiences of spontaneity and harmony with action, communication, production, achievement.

A further increase of domination will produce conformity, submission, a cessation of confronting.

In this relating of interpersonal conflict are found the negative emotions mentioned by psychologists. Anger, fear, jealousy, rage are found in the vicious circle of human relating.

In such emotions as bewilderment, grief, despair, the degree of spontaneity is too low to show the circular reactions of resistance.

The social-emotional climate of the classroom is important not only for the attitudes and patterns of interaction it creates, but also for the effectiveness of the learning that is accomplished in the classroom. Since very basic reorganizations were sought in the behavior of the experimental group teachers who participated in the training laboratory, it follows that the climate for learning was important there, too.

Gibb (1958) has outlined a number of aspects of the climate for effective learning:

1. Exposure of ideas and feelings. One of the characteristics of effective learning is sharing of the self. Learning is a process that involves communication and interaction of one person with another. It must permit the individual to look at himself and see how his ideas and feelings are seen by others. History shows that the crucial test of an idea is social--acceptance by others--true in science as well as in other areas. While experimentation and observation are the methods of science, an important phase of the process is reporting the findings in such

fashion that they can be verified by others. This is the social test of the reality of scientific findings.

This is true, but in a different way, in social learning. Feelings are central. To test the adequacy, the appropriateness, the basis in reality of feelings, they must be expressed so that they can be subjected to the social test of reality. Whether learning of content or learning of social skills, learning is not passive--it is active. Active participation necessarily involves exposure as a means of correction and reality testing.

2. Feedback. If exposure is necessary to learning, so is feedback. We must know the view that others take of our actions, our feelings, our ideas. If the test of knowledge is a social one, then there must be exposure; but following the exposure there must be feedback, a return to the person exposing himself of the perception of others of the adequacy of what he has presented. Children do not profit from practice unless there is knowledge of results. We do not learn from expressing ourselves, from behaving, without the evaluation of others around us. This is true in social perception as well as in the perception of content. Many of our perceptions of others, of ourselves, of the world around us are blocked or distorted. Discovering the blocked perception, or correcting the distorted one, can occur only when we describe what we see or do not see, hear, feel (exposure), and compare it with the perception of others (feedback). Learning is maximized when the quest for truth is shared with others.

3. A supportive atmosphere. When feedback follows exposure in a

critical, evaluative, or hostile atmosphere, the consequence is resistance, defensiveness, unwillingness to accept the feedback. Significant feedback is often potentially damaging to the ego since it informs of error or inadequacy. To correct an error we must know about it. "Learning occurs best in social situations where learners feel a climate of sharing in a quest for more and more adequate answers to problems that the learner sees as his problems. When one feels the necessity to defend his ideas and feelings in the presence of others, he is not free to collaborate creatively with others in this shared quest." The feelings of typical American university students about foreign language and mathematics follow from feedback in defensive atmospheres, Gibb suggests. "The learner who is anxious, concerned about his own adequacy, over-sensitive about the clarity of his own thinking, and the adequacy of his learning skills is not ready to pursue honest inquiry. When too much of the energy of an individual is consumed in defending his ego and maintaining his own security, the learner has little energy left for the quest. . . .

"Preschool children who plead with parents to read them more poetry, find after exposure to the defensive and competitive atmospheres of 'cultural appreciation courses' that they develop permanent and deep-seated resistances to the reading of poetry."

In social learning of the kind sought in the training experience, the importance of the supportive climate is, if anything, greater. The effect of a defensive climate is to intensify and make more rigid the person's usual modes of behavior. Change becomes harder, not easier.

This emphasizes the importance of a supportive climate in which the search for new solutions to problems is shared.

4. **Exploratory Behavior.** In the intellectual area, the learner must feel free to share tentative solutions and partially formed ideas with others, with the expectation of help in testing and completing them. The possibility of criticism or ridicule in a defensive atmosphere will cause the learner to keep his ideas and feelings to himself, rather than exploring them and searching for new and better solutions.

In the social area, each of us has motivations to punish, to control, to express warmth and affection to others. All of us need to learn ways of expressing feelings, particularly negative ones, in constructive ways. We need to explore and experiment with new ways of dealing with feelings. These are likely to be most central and most difficult, but the whole gamut of social behavior should be open to similar experimentation.

The norm should be the provisional try, the tentative trial solution offered for consideration, change, addition by others.

In the training which was given the teachers in the experimental group, an attempt was made to establish a free and supportive climate in the hope that by this experience, and the skills gained through it, the teacher would learn to establish the same climate in her classroom.

Following from the work described above, these are some of the assumptions about the nature of an ideal of education which are implicit in this research:

1. That education consists of something more than learning facts; that facts are not useful except as they are reflected in behavior;

further, that facts which the pupil gathers and integrates for himself are more nearly his own and more likely to be remembered and reflected in behavior.

2. That our understanding of the world and of our environment is constantly changing with the increases in knowledge which science produces, so that yesterday's facts are likely to be obsolete tomorrow. Consequently, learning is not in itself a goal so much as learning how to learn. The goal of education should be the establishment of a process of independent learning which will be carried on after formal education has ended.

3. An important element in this process of learning how to learn is that of learning how to learn from one's own experience in relationship to environment and to others. If it is true that learning is by experience, as educators often hypothesize, then it seems important to teach the pupil how to learn from his experience, since this will be the process which will enable him to continue learning beyond the influence of the classroom.

Combs (1954) has written very effectively of this hope of education,

Educators have succeeded very well in gathering information and in making information available to people. They have done far less well, however, in helping people to make information so much a part of themselves that they behave differently as a result of the educative process. Few of us misbehave because we do not know any better. Most of us have tremendous stores of information that seldom if ever appear in action. A truly effective education cannot be satisfied with helping its students intellectually to "know", "knowing" must somehow be translated into behaving.

Teacher should understand the process at work in a group which determines its effectiveness--the leadership and membership functions which must

The three assumptions listed earlier call for skills that are important to the teacher. How does she teach a child to learn, not facts, but how to learn and how to use facts? How does she teach the pupil to learn from his own experience and how to use this learning based on his own experience? Further, how does she teach in such a way that knowledge is translated into change in behavior? This is the kind of teaching how-to-teach which seems to warrant quite explicit training for the teacher.

Judging from the extent of writings on this general topic, this kind of ideal of education has been held widely and long. The question, then, is not whether goals of this sort are desirable--dedicated teachers and educators have accepted this--but rather how the teacher can be helped to translate these goals into reality.

An Experimental Educational Experience

From the ideal of education and the deviation of actual classroom practice from this ideal, there emerges a picture of the teacher skills and understandings which need to be developed in order to bring the ideal to actuality.

1. Understanding. It is important that the teacher understand the difference between laissez-faire and democratic leadership. The absence of autocratic procedures is often thought to be democratic, but actually it is laissez-faire. Much of the anarchy attributed to democratic procedures should rather be attributed to laissez-faire procedures. A teacher should understand the forces at work in a group which determine its effectiveness--the leadership and membership functions which must

be provided for task progress and group maintenance, and conversely the negative influences which disrupt the work of the group. The teacher must understand the necessity for pupils to make decisions in order to learn to make decisions, and to be free of teacher authority in order to learn to take responsibility for themselves.

2. Skills. As a teacher must understand the forces and functions important in group effectiveness, she must be confident of her own ability to provide leadership that develops pupil skills rather than supplanting them. In order to gain these skills for herself, she must have the opportunity to practice them in a "psychologically safe" environment. In order to use these skills, she must have skill in diagnosing what functions are needed in a group.

3. Sensitivity. It is important that the teacher be aware of the influence she exerts on the pupil group; that she be aware of the feelings and emotions present in herself and those with whom she works, as important elements determining group effectiveness. In addition, it is important that she become sensitive to her own "feedback"-- to become aware of the consequences of her behavior at the same time she participates.

It is a tenet of this kind of training that change in behavior is likely to take place only on the basis of experience. To talk about behavior is not enough; one must behave, and then evaluate the consequence. Hopefully this will provide a model for the teacher in her classroom. As she has learned from her own experience, she may learn to teach her pupils through the medium of their experience.

It also seems likely that the rewards of working with others in a self-directing group may provide the teacher with an awareness of the motivation which can be created by the experience of working with others. This is the motivation which may be capitalized on for pupil learning in the classroom in the same way the other learnings may be transferred.

In summary, this is training which should foster increase in understanding and skill in working in groups and in social relationships with others. But it also offers insight into effective means of organizing for work in the classroom and utilizing the rewards and motivations that come from satisfying working relationships with others.

One of the groups which has led in the development and application of laboratory training in group membership and leadership is the National Training Laboratory in Group Development, an agency of the National Educational Association (Chase, 1951; Chase, 1957; National Training Laboratory, 1953). Several kinds of experiences are involved: the training group, which is an unstructured, process oriented discussion group; skill practice, with role-playing, practice in group observation, and other well structured learning experiences; theory sessions designed to provide a cognitive frame of reference within which to integrate the learnings, and other training both inter- and intra-group. A basic element in much of this is the elicitation of behavior under conditions which make feed-back acceptable.

One of the most recent and comprehensive descriptions of this kind of training, particularly applicable to education, has been given by Miles (1959).

Stock (1957) has reviewed research on various phases of this training. A study of a number of variables on groups who had shared training group experience and groups who had not, showed that training group experience is effective in reducing feelings of defensiveness, and in increasing task efficiency (Gibb et al., 1955). Special training (role-playing, methods of observing group behavior--self and others) increased self-insight, and this special training plus feedback increased self-insight even more (Gibb and Platts, n. d.). It was also shown (Gibb, 1953) that role-playing and feedback each added a significant increment to the self-insight of training group members. Similar differences were found in an additional measure--role flexibility-- as rated by observers in a special test situation.

Mann and Borgatta (1959) and Blake and Mouton (1956) report findings indicating not only that change in behavior occurs, as a consequence of the training experience, but that personality measures taken before training predict this change.

In a series of training experiences in industry (Maier, 1952), supervisors who were trained by lecture, discussion, and role-playing felt increases in ability to try new methods of supervision, job satisfaction and awareness of personnel problems. Over half reported having begun using discussion with subordinate groups as a means of problem solving.

More to the point, altered perceptions of the supervisor by his subordinates were found (Hariton, 1951). In three out of four divisions

of a utility, training of the supervisors was followed by a significantly more favorable view of the supervisor by the workers. In the fourth, a decline was found in the posttraining, but an unpopular management change had been made during the study, and a later test showed a sharp up-turn.

In education training of this type has been utilized largely in the training of administrators and in dealing with problems of curriculum change.

The Syracuse studies (Combs, 1954) represent one of the more vigorously evaluated studies of changes in school administrators as a consequence of training. The training was conducted by group discussion designed to assist the participants to examine their own experience in terms of human relations principles. Changes were assessed in a number of aspects of the participants' personality and behavior:

1. Behavior changes during training: Participation moved consistently toward a warmer, more understanding, more democratic process, with the change occurring primarily in the group-centered discussions.

2. Pre- and post-changes in attitudes and motivation: other people (adults and children) were seen as more likeable, better accepted, and more responsible, with motivation shifting significantly toward democratic procedures, and away from autocratic ones.

3. Changes in definition and solution of administrative problems: With more acceptant attitudes toward others, greater concern for more personal problems (rapport and working relations with school staff)

developed, and concern for community sentiment and other external problems declined.

4. Changes in attitudes and behavior seen by administrator's employees and co-workers: Among changes seen were these: fewer angry outbursts, increased effort at understanding, encouragement of more active participation by the staff, and encouragement to offer suggestions.

Training given administrative students at Teacher's College in which the central method has been the training group has shown the following changes (Clark and Miles, 1954): "1. increased sensitivity to the dynamics of face-to-face groups; 2. deeper understanding of the future administrator's own role; 3. more skillful collaborative operation in small groups; 4. internalization of democratic norms; 5. greater self-understanding and acceptance."

Principles and problems of applying laboratory training in in-service education programs have been discussed by Miles and Passow (1957).

Application in the area of cooperative curriculum research has been reported by Miles and Corey (1957). Among the changes observed in the participants by the staff were such as "increased understanding of groups, insight into own role, insight and new ideas about back-home problems, skill in group situations, new attitudes---" The staff felt about a third of the participants changed little, about a fourth changed a great deal, and the remainder changed by amounts lying between these extremes. In a pre- and post-training inventory, participants reported significant

differences in their skills and techniques, but not in influence.

The training group as a part of the training of administrators in the teachers' college program has been described in some detail (Miles, 1953).

Although the studies reported show considerable scattering of methods used, problems studied, and evaluative methods applied, taken altogether they offer considerable promise for changing behavior. The changes appear to be ones in which the trainees become more self-insightful and sensitive to the needs and dynamics of others, as individuals and in groups. As a consequence, they become more skillful in working with others, in eliciting cooperation, in fostering involvement, and in encouraging growth in their co-workers and subordinates. This appears to support the hope that such training for teachers will lead to similar growth on the part of their pupils.

The crucial question, however, is whether adaptations of the procedures can be applied to six or seven year olds with similar results. If so, will it result in maintaining or even increasing the enthusiasm and spontaneity they bring to school? It is the expectation of the investigators that it can and will.

This is a varied literature. Within the ideal of education, and applications of laboratory training cited, there are researches on creativity; on the effect of emotional climate; on learning democratic processes in group problem solving by pupils in the classroom and by men in industry; on learning to take responsibility for one's own

CHAPTER III

behavior and for the behavior of the group of which one is part, both by men in industry and children in the classroom. Although these may appear loosely related, perhaps there is a single common element--an ideal of leadership and organization--and all of these researches represent various approaches to fostering personal growth in the individual. All are examples of the growth in personal and social responsibility and the freedom for spontaneous and effective interaction with one's fellows and one's environment that follows freedom from the resistances induced by domination and hostility.

General Statement of Problem

Does teacher behavior in the classroom change as a result of intensive laboratory training in human relations? Do the pupils of teachers who have received such training differ in their group behavior from the pupils of teachers who have not received training? To answer these questions, the general plan of the study involved an experimental and control group of teachers who were compared before and after participation in the experimental group in laboratory training in human relations. Data collected included measures of personality and attitudes; personal history data; classroom observations of teacher and pupil behavior; and pupil performance on a standardized test of social relations.

Hypotheses

In completing this study, the primary null-hypothesis tested was:

There are no changes in teacher or pupil classroom behavior which result from intensive laboratory training of the teachers in human relations.

CHAPTER III

DESIGN AND PROCEDURES

This chapter has a number of purposes. These are first, to state the specific hypotheses that were formulated and tested; to indicate the data collected; to describe the sample of teachers who participated; and finally, to describe procedures utilized in collecting and analyzing the various measures of teacher and pupil behavior. From this process, an attempt was made to evaluate human relations training for teachers in terms of the changes in teacher and pupil classroom behavior.

General Statement of Problem

Does teacher behavior in the classroom change as a result of intensive laboratory training in human relations? Do the pupils of teachers who have received such training differ in their group behavior from the pupils of teachers who have not received training? To secure answers to these questions, the general plan of the study involved an experimental and control group of teachers who were compared before and after participation by the experimental groups in laboratory training in human relations. Data collected included measures of personality and attitudes; personal history data; classroom observations of teacher and pupil behavior; and pupil performance on a standardized test of social relations.

Hypotheses

In completing this study, the primary null-hypothesis tested was:

There are no changes in teacher or pupil classroom behavior which result from intensive laboratory training of the teachers in human relations.

In addition to this major hypothesis, a series of specific null hypotheses were tested which dealt with changes in teacher attitude and personality characteristics, and observed classroom behavior of the teachers and pupils. These specific null hypotheses are outlined below:

Hypotheses related to attitude toward teaching

1. There is no change in the attitude of teachers toward the occupation of teaching after intensive laboratory training in human relations.
2. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to attitudes towards the occupation of teaching.
3. There is no change in the attitude of teachers toward pupils after intensive laboratory training in human relations.
4. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to attitudes towards pupils.

Hypotheses related to concept of educational leadership

5. There is no change in the concept of educational leadership held by teachers after intensive laboratory training in human relations.
6. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to concept of educational leadership.

Hypotheses related to personality characteristics

7. There are no changes in personality characteristics of teachers after intensive laboratory training in human relations.
8. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to personality characteristics.

Hypotheses related to Verbal Emphasis

9. There is no change in the classroom Verbal Emphasis of teachers after intensive laboratory training in human relations.
10. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to classroom Verbal Emphasis.

Hypotheses related to Social Structure

11. There is no change in the Social Structure of the classroom of teachers after intensive laboratory training in human relations.
12. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to Social Structure of the classroom.

Hypotheses related to Emotional Climate in the classroom

13. There is no change in Emotional Climate of the classroom of teachers after intensive laboratory training in human relations.
14. There is no difference between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to Emotional Climate in the classroom.

Hypotheses related to group problem solving skills of pupils

15. There is no change in the group problem solving skills of pupils of teachers after intensive laboratory training in human relations.
16. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to group problem solving skills.

Hypotheses related to Teacher Reported Group Activities

17. There is no change in Teacher Reported Group Activities after intensive laboratory training in human relations.
18. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to Teachers Reported Group Activities.

Hypotheses related to Staff Rated Group Activities

19. There is no change in Staff Rated Group Activities by teachers after intensive laboratory training in human relations.
20. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to Staff Rated Group Activities.

Data Collected¹

To collect data about these hypotheses, the experimental and control group of teachers were administered several attitude and personality inventories, and free response questionnaires. Teachers and their classrooms were observed by means of a standardized observation schedule and the pupils of each teacher were administered a group performance test. These data were classified into three groups: inventory data (attitude and personality), classroom behavior data, and questionnaire data. These are summarized in Table 1 and in Appendix A.

1. Much of this section has been freely adopted from Rippey (1960, pp. 34-68).

Table 1

Data Collected From Each Teacher and Classroom

A. Inventory Data

I. Bowers Teacher Opinion Inventory (BTOI)II. Minnesota Teacher Attitude Inventory (MTAI)III. Survey of Educational Leadership Practices (Survey)

- a. Ideal
- b. Actual
- c. Discrepancy

IV. Minnesota Multiphasic Personality Inventory (MMPI)^a

B. Classroom Behavior Data

I. Observation Schedule and Record (OSCAR)

- a. Factor 1, "Emotional Climate" (EC)
- b. Factor 2, "Verbal Emphasis" (VE)
- c. Factor 3, "Social Structure" (SS)

II. Russell Sage Social Relations Test (RSSR)

C. Questionnaire Data

I. Biographical

II. Group Activities Record

- a. Teacher Reported Group Activities (TR)
- b. Staff Rated Group Activities (SR)

a. Refer to Appendix A for sub-scale abbreviations.

Attitude Inventory Data

Attitude measures that were administered included the Bowers Teacher Opinion Inventory, the Minnesota Teacher Attitude Inventory, and the Survey of Educational Leadership Practices.

Bowers Teacher Opinion Inventory (BTOI). The BTOI provides a measure of satisfaction with teaching that is relatively independent of situational and environmental factors. It measures those attitudes that condition the relationship between the teacher and the profession. Criteria for the satisfied teacher included five factors: (1) continued teaching in spite of greater financial reward from other occupations, (2) social services to the community, (3) specialized professional training, (4) active participation in professional organizations, and (5) improvement in professional techniques. In the initial validation study, the BTOI did not correlate significantly with the MTAI. Additionally, concurrent validity was studied in terms of principals' ratings and found to compare favorably with the concurrent validity of other attitude scales. Reliability was estimated to be .958. The research on this inventory seemed to indicate its usefulness in assessing those professional attitudes that predispose a person to be a permanent member of the teaching profession (Bowers, 1955).

Minnesota Teacher Attitude Inventory (MTAI). The MTAI purports to measure attitudes of teachers toward children and school work. The inventory consists of 150 items and validity coefficients in the low .60's using multiple criteria have been found. Teachers ranking at the

high end of the scale are characterized by harmonious relations in their classrooms. The social atmosphere is one of cooperative endeavor, security and permissiveness. Low scoring teachers dominate the classroom, and the social atmosphere is one of tension, fear, submission or frustration, restlessness, and discipline problems (Cook et al., 1951). Research on the MTAI has been surveyed by Rippey (1960), Coleman and Collett (1959), and interesting data has appeared in a recent issue of the Journal of Teacher Education (Cook and Hoyt, 1960). Although not a direct measure of teacher classroom behavior, the MTAI has shown consistency in predicting combinations of ratings by administrators, pupils, and expert raters.

The Survey of Educational Leadership Practices (Survey). This inventory was designed to distinguish between the attitudes of teachers toward administrative practices along a democratic to authoritarian continuum. A teacher at the low end of the survey was purported to view "authority and expert opinion at the top of the hierarchy of values with himself as the representative of that authority The tone of his interaction is formal, marked by frequent one-way communications" (Valenti, 1952). A teacher scoring high purportedly "tried to develop group standards, helps the group to express its own opinions The tone of his interaction is very informal with frequent unstructured (and non-directive) two-way communications" (Valenti, 1952, p 37). Three scores were utilized in this study: the "Ideal" score represented the teacher's ideal practice; the "Actual"

score represented the teacher's judgment of perceived actual practice in his school; and the "Discrepancy" score was the difference between the two.

Relationships between attitude data. As shown in Table 2, the attitude inventory scores provided relatively independent data. Since both the Ideal and Actual scores on the Survey are used to compute the Discrepancy score, a significant correlation might be predicted. Such was the case. On the basis of these data, it was concluded that with this sample the attitude inventory measures did not overlap significantly. Although some common elements might be present, for the most part, each of the attitude inventories appeared to contribute different information related to teaching factors.

Table 2

Intercorrelations of the Attitude Inventory Data
for 54 Elementary Classroom Teachers

	BTOI	MTAI	Survey		
			Ideal	Actual	Discrepancy
<u>Bowers Teacher Opinion Inventory</u>	--	.173	-.063	-.210	-.195
<u>Minnesota Teacher Attitude Inventory</u>		--	.228	.082	.047
<u>Survey of Educational Leadership Practices</u>					
Ideal			--	-.197	.643*
Actual				--	.877*
Discrepancy					--

* $P < .001$

Personality Data

One inventory of personality was utilized: the Minnesota Multiphasic Personality Inventory.

Minnesota Multiphasic Personality Inventory (MMPI). The MMPI was originally developed to aid in psychiatric diagnosis. However, it has become an instrument used to describe characteristics of many different groups, including the normal. The ten clinical scales, and L, F, and K were used in this study. In addition, the following scales were used: Anxiety (A), Repression (R), Pharisaic virtue (Pv), Hostility (Ho), Teacher attitude (Ta), and Ego-strength (Es).

Descriptions of the ten clinical scales and L, F, and K are well known and are summarized here only as a convenient reference:²

1. The Hypochondriasis scale (Hs) "is a measure of amount of abnormal concern about bodily functions." High scoring persons are overly worried about their health and tend to be immature in their approach to adult problems.
2. The Depression scale (D) "measured the depth of the clinically recognized symptom or symptom complex, depression." High scorers tend to react to stress with a lack of self confidence, narrow interests, and worry. D with Hy and Hs identifies those people commonly referred to as neurotic.
3. The Hysteria scale (Hy) measures the extent to which a person "is like patients who have developed a conversion-type hysteria syndrome."

2. All direct quotations are taken from Hathaway and McKinley (1951).

Under stress high scorers are liable to episodic attacks of weakness, overt hysteria, and the development of symptoms. High scorers are immature.

4. The Psychopathic deviate scale (Pd) "measures the similarity of the subject to a group of persons whose main difficulty lies in their absence of deep emotional response, their inability to profit from experience, and their disregard of social mores." High scorers are frequently likable and intelligent and their abnormality may not be detected until serious problems arise. "Some active professional people have high Pd scores, but their breaks, if any, are either disregarded by others or effectively concealed."

5. The Interest scale (MF) "measures the tendency toward masculinity or femininity of interest pattern." While items included in this scale were chosen on the basis of indication of femininity on the part of male homosexuals, homosexual abnormality is not to be assumed on the basis of high scores.

6. The Paranoia scale (Pa) "was derived by contrasting normal persons with a group of clinic patients who were characterized by suspiciousness, oversensitivity, and delusions of persecution, with or without expansive egotism."

7. The Psychasthenia scale (Pt) "measures the similarity of the subject to psychiatric patients who are troubled by phobias or compulsive behavior." The phobias are unreasonable fears or overreaction to more reasonable events. Compulsive behavior includes acts which

are performed without regard to rational considerations and includes obsessive thinking.

8. The Schizophrenia scale (Sc) measures similarity to persons whose subjective life is split from reality so that shifts in mood and behavior seem irrational.

9. The Hypomania scale (Ma) "measures the personality factor characteristic of persons with marked overproductivity in thought and action." High scorers tend to be enthusiastic and active. They frequently get into trouble because they try to do too many things at once and are unable to push ideas through to satisfactory conclusions.

10. The Social Introversion (Si) scale purports to measure the extent to which a person withdraws from others. High scores indicate introversive tendencies. The scale has been found to distinguish between college women who engage in few extracurricular activities from those who engage in many.

The L scale is often referred to as the "lie" scale, and is a measure of test taking attitude. High scores indicate an effort to make socially approved responses, and if the score is extremely elevated, the other scales are invalidated.

The F scale (a validity scale) is made up of items to which most subjects, maladjusted, or well-adjusted, respond the same way. High scores indicate inability to read, or to understand, or attempts to malingering.

The K scale is one of the validity scales. High scorers tend

to be defensive against psychological weakness which results in distortion in the direction of making a more "normal" appearance. Low scorers, on the other hand, are overly cordial and open to self criticism. K scores have been studied on their own merit, but customarily provide a corrective variable which increases the validity of the Ho, Pd, Pt, Sc, and Ma scales.

The Anxiety (A) and Repression (R) scales were developed from the original scales by factor analysis and according to Welsh account for most of the reliable variance shown by the inventory. Persons with high A scores are hampered by a lack of self confidence as a result of anxiety. High scores on R are characterized by repression and denial. Low scores accompany "acting-out" behavior (Welsh and Dahlstrom, 1956, pp. 264-281).

The Ego-strength scale (Es) consists of sixty-eight items, with an odd-even reliability for a clinic population reported as .76. Test-retest reliability after three months for a population of thirty was .72. The difference between the means of a group of improved patients and a group of unimproved patients was 23.6, significant well beyond the .01 level. The Es scale has seemed "to be measuring constructive forces in the personality. Thus it may serve as a predictor in any situation in which an estimate of personal adaptability and resourcefulness is called for" (Welsh and Dahlstrom, 1956, pp. 226-234).

The three scales Hostility (Ho), Pharisaic Virtue (Pv), and Teacher Attitude (Ta) were developed from an item analysis of MMPI

items which discriminated between high and low scorers on the MTAI. Those items which reflected hostility made up the Ho scale; items concerning virtue and morality made up the Pv scale. The two combined made up the Ta scale. High scorers on Ho were characterized by a dislike for and distrust of other people. High Pv scorers were described as preoccupied with morality and ridden with fears and tensions. Ta was found to have a $-.50$ correlation with the MTAI (Cook and Medley, 1954).

Intercorrelation of MMPI keys. The intercorrelations of these keys can be found in Tables 49 to 51, Appendix C. Inclusion is made, not because of direct use in this study, but because the intercorrelations have been the subject of other and varied research (Comrey, 1959, 1960).

Use of MMPI with teachers. The MMPI has been used in numerous studies with teachers. Recent reviews can be found in Rippey (1960) and Coleman and Collett (1960). When the MMPI is related directly to, aspects of the classroom that reflect teachers' personality, the results have been somewhat more gratifying than when MMPI scores have been related to ratings of teacher behavior. This research supports the use of the inventory in studies which collect behaviorally defined criterion data that are also logically related to teacher personality.

Classroom Behavior Data

The specific measures of classroom behavior were the Observation Schedule and Record, a standardized observation record, and the Russell

Sage Social Relations Test, a test of pupil skill in cooperative planning and work.

Observation Schedule and Record (OSCAR). The OSCAR was developed to provide a technique for measuring classroom behavior (Medley and Mitzel, 1958). An observer records specific behavior, and the scoring is a clerical operation (See Appendix E).

The original fourteen keys of the OSCAR were found to have reliabilities ranging between .61 and .89., and a factor analysis of these scores revealed three factors: (1) Emotional Climate, (2) Verbal Emphasis, and (3) Social Structure. The sum of the observed hostile and disorderly acts on the part of teacher and pupils, negatively weighted, and the supportive acts of the teacher, were recorded as the score for emotional climate. A low score resulted from a relatively large number of hostile acts. Verbal emphasis had to do with the relative emphasis on written and verbal activities in the classroom. A high score was indicative of a classroom in which traditional written and verbal activities predominated. Social structure had to do with the number of small group activities in the classroom; a high score indicated a higher frequency of small group activity. The reliabilities of the factors and their intercorrelations are given in Table 3 (Medley and Mitzel, 1958, pp. 89-90).

It was concluded by Medley and Mitzel (1958, pp. 91-92) " . . . (a) relatively untrained observers using an instrument like OSCAR can develop reliable information about differences in classroom teachers,

and (b) that the OSCAR technique is sensitive to only three of many dimensions that exist."

TABLE 3

Reliabilities and Intercorrelations of Observation
Schedule and Record Factors

Factors	EC	VE	SS
Emotional Climate (EC)	(.903)	-.004	-.110
Verbal Emphasis (VE)		(.770)	+.028
Social Structure (SS)			(.826)

() Reliabilities.

The administration of the OSCAR requires thirty minutes. Three five-minute periods are spent observing specific types of behavior on the part of teachers and their pupils. Three five-minute periods are spent categorizing teacher remarks. For a copy of the OSCAR, and directions for deriving factor scores see Appendix E.

Russell Sage Social Relations Test (RSSR). This measure was developed to evaluate the nature and quality of elementary school children's skill in cooperative group planning and group action (Damrin, 1959). The test material consists of three construction problems involving thirty-six interlocking blocks of two shapes and three colors. Administration of each problem requires an examiner and

observer. During the testing session, the teacher may remain in the room but is inactive. The examiner's role is carefully defined. He explains the test and its rules in a standardized way, attempts to create and maintain an atmosphere in which optimum group planning is possible, and refrains from providing any ideas of ways of solving the problem or evaluating the ideas of the class. During the work period the examiner withdraws and refuses to give assistance or information. Only if the behavior becomes so noisy or disorderly as to disturb other classrooms does he quiet the group. Meanwhile, the observer sits apart from the group and during the planning stage records the level of interest as the blocks are being passed to the children. He records the content level of each suggestion made by a child and its communication intent. In addition, every remark of the examiner is recorded as a prod (urging the group to make suggestions), a reminder (any disciplinary action), or an assist (any help enabling the group to make a decision). During the operations stage four factors are recorded. These are (1) the approximate percentage of children involved in the work, (2) the atmosphere of the group at work, (3) the activity of those children who have left the work field, and (4) the degree of success in solving the problem. In this study, testing was discontinued when it was evident that the children were unable to conceptualize the problem or unable to handle the manipulation of the blocks. Fifteen minute time limits for the construction phase of each problem are specified; no time limits are specified for the planning phase.

The test was scored on ten variables, divided into two groups: the planning variables and the operation variables. The planning variables were: participation, communication, ideas, plan, involvement and autonomy. The operation variables were: involvement, atmosphere, activity and success. Each problem was scored separately. Use was made of an empirical weighting system that combined empirical weights for each of the ten variables into a single score, weighting system as devised by Medley in earlier work with the test (Appendix F). The correlation between RSSR and grade level was found to be .72; accordingly, the scores were corrected for grade level.

As shown in Table 52, Appendix C, reliabilities of the scoring system, as computed by analysis of variance procedures (Hoyt and Stankard, 1952) were found to be .79 for problem one, .75 for problem two, and .64 for problem three for this sample of teachers. Combining all three problems, the analysis of variance reliability estimate for the total score was found to be .82. Additional information regarding the reliability of the test was obtained from intercorrelations of the three problems and the correlation of each problem with total score, corrected for grade level. As shown in Table 4, these data indicated an acceptable level of internal consistency.

TABLE 4

Russell Sage Social Relations Test Problem
Intercorrelations and Relationships
with Total Score for Fifty-Four
Elementary Teachers

	Problem ^a		
	1	2	3
Problem 1	---		
Problem 2	.675	---	
Problem 3	.738	.736	---
Total	.633	.514	.615

a Corrected for grade level.

Conclusions concerning classroom behavior measures. These two instruments provided behavior measurements of specific human relations aspects of a classroom. The OSCAR offered a measure of emotional climate, verbal emphasis, and social structure. The RSSR provided a score which indicated skill in pupil cooperative planning and action. The intercorrelations of these two instruments are given in Table 5. Although the three OSCAR factors do not agree entirely with the Mitzel-Medley data reported earlier, it was decided that essential independence existed and the three factor scores would be useful. The absence of significant correlations between OSCAR factor scores and the RSSR suggests the possibility that there may well be additional significant factors about teaching. In this respect, the findings agree with suggestions made by a number of other research workers (Medley and Mitzel, 1959; Ryans, 1960). At any rate, these two instruments are

probably the best available for assessing classroom behavior, and were related on logical grounds to important factors in this study.

TABLE 5

Intercorrelations of OSCAR Factors and
Russell Sage Social Relations Scores
for Fifty-Four Elementary Teachers

	OSCAR Factors			RSSR
	EC	VE	SS	
<u>Observation Schedule and Record</u>				
Emotional climate	---	.095	-.078	-.026
Verbal emphasis		---	-.264*	.081
Social structure			---	-.004
<u>Russell Sage Social Relations Test</u>				---

* $P < .05$

Questionnaire data

In addition to the inventory and behavioral measures described earlier, each teacher was asked to complete a biographical history and a group activities record. (See Appendix G).

Group activities record. The group activities record (the log) asked that each teacher report the group activities used in the classroom during a specified week. The teacher was asked to list the number of group activities which she utilized during each of the days, to describe each activity briefly (subject area, number of students involved, what happened), and then to select and describe one activity in detail.

In this description, the teacher was asked to include (a) what she as the teacher did to facilitate group activities; (b) how well the group functioned; and (c) how well the objectives were fulfilled. The specification of the week to be reported was varied from teacher to teacher in such a way that an equal number began on each day of the school week; each teacher reported five consecutive days from the specified starting day.

Examination of these logs suggested that at least two measures could be derived from the data. One measure was the total of the group activities which the teacher herself counted and reported as group activities; the other was a count of group activities by a somewhat more stringent criterion. The first of these was labeled Teacher Reported (TR), the second Staff Rated (SR). The basic difference was whether pupil-pupil interaction was part of the activity. For example, teachers typically listed reading groups among their group activities, but these (and other groups like them) were ones in which a small part of the class was called to the front of the room, sat together, and were called on one at a time to read or recite. Little or no pupil-pupil communication took place. Such an activity as this would be counted under the label "Teacher Reported". The category "Staff Rated" included only group activities in which free interaction among pupils was a significant part. The correlation between these two ratings was $-.032$. Relationship of each rating with the other observed classroom behavior is given in Table 6. Significant correlations between the

TABLE 6

Relationship of Teacher Reported and Staff Rated
Group Activities to Other Measures
of Classroom Behavior (N=54)

Measure	Group Activities	
	Teacher Reported (TR)	Staff Rated (SR)
<u>Observation Schedule and Record</u>		
Emotional Climate	.120	.035
Verbal Emphasis	.363 **	-.164
Social Structure	-.268 *	.109
<u>Russell Sage Social Relations Test</u>	-.035	.094

* $.01 < P < .05$

** $P < .01$

Teacher Reported Group Activities were found with the Verbal Emphasis and Social Structure factor scores of the OSCAR. No significant correlation was found between any of the other classroom behavior data and the Staff Rated Group Activities. From these data, a number of hypotheses might be generated for later testing. However, the use made in this study was to determine whether the addition of these ratings as criterion measures might be useful. If they had been found to correlate highly enough that little additional information would be gained by their utilization, they would have been discarded. However, this was not the case, and they were retained.

Summary of data collected

Although three major classes of data were collected, it was decided that two groupings would be more appropriate for analysis. The final

grouping of measures was: the inventory data and the classroom behavior measures. The inventory data included attitudes toward the profession (BTOI), toward pupils (MTAI), three scores assessing attitudes toward educational leadership (Survey), and the MMPI as the personality measure, scored on 19 keys. The classroom measures included the three scores derived from the OSCAR, the RSSR test of pupil group skill, and the two ratings of group activity: teacher reported and staff rated. The remaining questionnaire data from the biographical history was utilized to describe characteristics of teachers used in the study.

In all, a total of thirty different measures were collected for each teacher participating in the study. Use of each measure in relation to the specific hypothesis studied has been summarized in Table 7.

The Sample

All teachers who participated in this project were elementary school teachers in Tennessee, either in the Nashville City school system or the Davidson County school system.

Recruitment of teachers

Several procedures were used in obtaining the cooperation of the teachers. Initially meetings were held with interested members of the administrative staffs of both school systems. Conferences with the superintendents were arranged, followed by meetings with members of the administrative and supervisory staffs.

In the Nashville City Schools, approval to work with the teachers was obtained from the Curriculum Committee of the City Board of Education. In Davidson County the project was approved by the County Board of Education. Following these preliminary steps, a meeting was held with the Nashville City School Principals, and their approval secured.³ Finally, recruiting of the classroom teachers was started.

Several methods of recruiting were tried: talks with principals, school faculties supplied with written material describing the project's goals and procedures, and meeting simultaneously with interested groups of teachers from several neighboring schools. The most effective method which ultimately was found involved three steps. First, the principal was informed about the project, and material was left for all teachers to read. Next, a presentation was made to the school staff at one of their regular meetings by project investigators. Finally, individual conferences were held with teachers who expressed interest.

It is important to recognize that the recruiting was accompanied by a full description of the nature of the project. It was pointed out that observations in the classroom and the administration of a situational group problem solving test to the pupils would be a part of the procedure, as well as extensive inventory data required from the teacher herself.

3. Special acknowledgment is given to Mr. R. N. Chenault, who was instrumental in gaining support at this meeting.

No attempt was made to minimize either the time commitment, or the disruption to the usual class activities necessitated by administration of the RSSR. The only material reward available to the participating teachers was credit for attending the summer sessions of laboratory training in human relations, or a course of his choosing at George Peabody College for Teachers at no expense.⁴

No pressure was exerted by school systems to encourage teachers to take part, nor, so far as could be determined, by principals. The pattern of success in recruitment suggests that this was the case. Typically, one or two teachers from a given school volunteered for the project; in many schools, none did; in a few, a number volunteered. The maximum number obtained from a single school was seven.

Initially, 62 teachers volunteered, but the number dwindled to 57 before completion of the pre-test data and to 54 by the time the follow-up data were completed. Of these, 29 were assigned to the control group and 25 were assigned to the experimental group.

Three teachers taught classes of special children. Of these, one was teaching mentally retarded; two were teaching hard of hearing. Utilization of data from their classrooms seemed inappropriate, and information involving these special teachers was used only as indicated.

Finally, the data used to test most of the hypotheses were from 51 teachers, 28 in the control group and 23 in the experimental group. Personal history data from both of these groups are given in Tables 40 to 47 in Appendix B.

4. Vanderbilt University paid the tuition costs for these teachers.

Characteristics of the teachers

Most of the teachers in both groups were married; more than half had taught 9 years or more, in one or two school systems, and had more than four years of post-high school education. Over half of each group had attended the same college (George Peabody College for Teachers) and were relatively active in professional organizations. At the same time, the likelihood is that the teachers who volunteered for the project were not a representative group. Probably, they were a biased group, and included a disproportionate number of teachers who were definitely committed to teaching as a career, very much involved in increasing their own teaching skills and in furthering their own competency. In addition, these teachers were likely the better adjusted, more secure members of the teaching profession in their respective schools. Generalizing the results of this study to all teachers is obviously impossible. Recognition of this limitation is made in further analysis of the data (See pages 49 and 142-144).

Assignment to Control or Experimental Group

Assignment of teachers to the control or experimental group proved to be a difficult problem. Originally, it had been planned that the assignment would be at random, but this proved to be somewhat impossible, as a consequence of practical considerations. Participation in the experimental group required attendance at one of two three-week summer workshops. The first was scheduled during the first three weeks after public school sessions had ended. The second was scheduled during the last three weeks before school started in September. Previous commitments

for some of the teachers precluded their assignment to either workshop--family vacations, required attendance at summer school, summer jobs, and other plans. The result was that the experimental group was composed entirely of teachers who were willing to be in either group, but the control group included some who were willing to be in the experimental group and some who were able or willing to be only in the control group.

Comparisons between the control and experimental groups

Because of the operation of these factors, three different analyses were completed. First, the two groups were compared on personal history data, and no differences found. The next analysis suggested that no differences existed between the two groups with respect to socioeconomic status of the school in which a cooperating teacher was assigned. Using a median split, the schools were classified as "upper" and "lower," and each teacher tabulated in terms of experimental or control, "upper" or "lower." A Chi square test resulted in no significant difference ($P < .50$). Finally, an analysis of variance was performed on each pretraining measure to discover whether there were any significant differences between the experimental group, the control group members who might have been experimental group and the control members who were not available for assignment to the experimental group. The null hypothesis that the three groups were from the same population was rejected in only 2 of the 30 analyses completed.

Since no more than this number could have been expected by chance (Sakoda, Cohen, and Beall, 1954), it was decided to pool the two sub-divisions within the control group. The entire evidence suggests strongly that the control and experimental groups did not differ initially in measured characteristics. Results of these analyses are given in Tables 47 through 48 in Appendix B.

Procedures in Collecting Data

Three main steps were involved in collecting the data:

(1) collection of pretraining data; (2) laboratory human relations training for teachers in the experimental group and (3) collection of posttraining data.

Collection of Pretraining Data

Inventory and self-report data. Early in the spring semester all participating teachers received two envelopes. Each included approximately half of the requested inventory and questionnaire data. These were sent out several weeks apart, and a teacher was free to work on his own time without supervision. The directions asked that he not talk with others, and that he work at the material only when he had a block of time to devote to it. Relevant instructions from each inventory manual were provided and the teachers were asked to refer questions directly to the principal investigators.

Classroom behavior data. The classroom behavior data involving the RSSR and OSCAR were collected by the principal investigators and

the field staff. Since the classroom behavioral data were somewhat subjective and required considerable experience to gain agreement on their use, the field staff and principal investigators met together repeatedly. Directions, test manuals and research reported in the literature were read, discussed and agreement on interpretation reached. Observations were then carried out in non-participating schools, the results compared, further discussions held to clarify disagreements and to reach new agreements based on them, and further observations were made. This procedure was followed until agreement among staff members was high. After data collection was begun, a regular program of checking observer reliability and administrator procedure for the RSSR was followed. For the OSCAR, two members of the field staff observed the same classroom and compared results in rotation. This was an attempt to control possible change of standards of different members of the staff during the data collection period. Collection of the classroom behavior data continued throughout most of the spring semester, 1959.

The Experimental Treatment

Two training laboratories were held during the summer of 1959, one in June immediately after the end of school, the other in August before the fall term began. Fourteen teachers attended the first, eleven the second. These workshops were modeled after those of the National Training Laboratory in Group Development at Bethel, Maine. Three general classes of activity comprised most of each daily learning

experience: (a) theory session, a relatively traditional lecture presentation, which occupied no more than forty-five minutes of each morning's work; (b) skill practice, a structured activity involving such procedures as role play, group discussion, or other task set for the group by the training staff and carried out under their direction (frequently, theory and skill practice were integrated so that theory was developed out of the group exercise); (c) training group, an unstructured group discussion which lasted for two hours each day of the three-week period. The last of these is often seen as the heart of the group development training experience, and has been described by several authors (Chase, 1954) (Miles, 1959).

Briefly, this last experience provides a training device in which the group members discover in a kind of microcosm of their experience together all of the problems, procedures, and controls necessary in a group; and have the task of developing these as needed. The staff does not exercise a leadership function in this activity, but rather takes the role of a process observer who comments to the group on what it is doing, and fosters analysis of the activities of the group by the members themselves.

The conduct of the training differed in several, perhaps important, respects from the usual laboratories held in Bethel, Maine. For one, the participants lived at home, spending a half day in the workshop five days a week for three weeks, returning to their family roles for

the remaining time. It has often been hypothesized that an important element in training is escape to a "cultural island" in which the participant is freed from the problems and concerns of "back home." This was not the case here. Another difference was that theory and skill practice were more closely integrated than is usual at the Bethel workshops. This was made possible by the small size of both groups. It was possible either to present theory first, and apply it through skill practice, or have the skill practice first and develop theory out of the exercise. The two usually took about two and one-half hours, of which the theory averaged approximately forty-five minutes. A list of the lecture topics and representative skill practices is included in Appendix D.

Reading lists were provided for the participants, and a collection of materials was gathered in the room used for the training sessions. No assignments were made, however, and procedures for checking out and returning books were planned entirely by the group members. Since the teachers who participated were receiving credit at George Peabody College for Teachers, grades were necessary, but were not based on performance in the training sessions themselves. Rather, the grades were assigned from a log and analysis of the activities of the training group which each teacher kept. Voluntary daily evaluations could be submitted by the participants, and at the end of the training period, an evaluation was requested from each teacher (Appendix H).

Collection of Posttraining data

The collection of the follow-up data consisted of a repetition of all of the measures taken at the beginning of the project. These were carried out throughout most of the spring semester, 1960, approximately a year after the initial data was collected. While extensive training of the field staff was not necessary for collecting the follow-up data, "refresher" training sessions were held to reestablish a common set of standards, and the same procedure of having regularly scheduled joint observations was repeated.

Analysis of Data

In addition to the analyses related to description of the sample and selection of specific statistical procedures, a number of preliminary steps were taken before the data were analyzed and the hypotheses tested.

All data were punched on IBM cards, and sums, sums of squares, sums of cross products, means, standard deviations and product moment correlations were obtained by use of an IBM 650 computer. The third step involved additional analyses of pretraining scores; next, statistical evaluation was given to difference scores that compared changes from pretraining to posttraining in the experimental group, and compared experimental and control groups posttraining. Finally changes between the two groups, adjusting for related pretraining measures, were analyzed.

Analysis of pretraining results

As the first step in the analysis of pretraining measures, the assumption of linearity of regression was tested by analyses of variance around the regression line (Johnson, 1949, pp. 240 ff). The results of this preliminary work data have been reported in Rippy (1960, pp. 181-200).

If significant departure from linearity was found, the correlation ratio, η , was utilized. If the regression was found to be linear, product moment correlation coefficients (r) were used to estimate relationships. This procedure was used in relating all attitude and personality scores with classroom behavior measures.

To test the assumption of normality of distribution, probit analyses were completed for all attitude, personality, and classroom behavior data. These results have been given by Rippy (1960, pp. 154-79). The data appeared normally distributed, and in this regard use of parametric statistics seemed justified.

The next step dealing with pretraining scores involved analysis of biographical data in terms of two criteria: Teacher Reported Group Activities, and Staff Rated Group Activities. To test the significance of difference between the two groups, either t tests or Chi-square were used. Chi-square was employed whenever the data were frequency data; t tests were computed for appropriate quantitative measures. The high and low 27 per cent of teachers were identified on the two criteria, and Chi-square was utilized to assess significance of differences in

biographical items of marital status; work outside of education or opportunity for it; membership in the local teachers association, TEA, NEA, or other teacher organizations, or attendance at meetings; having held office, the nature of the office, or the number of offices held; reading professional publications, total publications read, specific journals read; grade level taught, the reasons for teaching that grade level, or the grade level for which the teacher was trained; community groups, membership in PTA and church, and reading of non-professional materials. In considering years of experience in teaching and Teacher Reported Group Activities, a cubic polynomial was fitted and the significance of variance associated with each form of regression was tested. The procedure followed was that suggested by Johnson and Jackson (1959, pp. 401 ff).

Analysis of posttraining measures

The analysis of posttraining data involved three distinct and separate procedures. First, differences between the two groups were compared on the various measures in terms of changes from pretraining to posttraining data (change scores). Next, change from pretraining to posttraining within the experimental group was analyzed. Finally, analyses of the data were performed that utilized specified pretraining inventory measures as controls for selected posttraining classroom behavioral measures.

Tests of significance of change. Changes in the attitude and personality characteristics of the experimental group were compared

with changes of the control group by a t test of differences. Although it was reasonable to hypothesize no change in the control group, it seemed desirable to utilize the change found in the control group as a reference and compare it with the change in the experimental group. To do this, change scores were calculated for each subject for each measure. The change scores were then treated as scores, the mean and variance of each distribution computed, and the difference between means of the groups tested by the t test. The effect, then, was to test the significance of difference in change between the experimental and control groups. Significance of change, pretraining to posttraining within the experimental group was also assessed by difference scores and the significance of the difference of mean change from zero was tested. While this comparison is not as crucial as the preceeding one, it is reported for interest.

Analysis of the classroom behavior data. Since the rationale of the study makes change in behavior on the part of teacher and pupils of paramount interest, the most intensive analyses were made of the observational and self-report data. Each of the six behavioral measures (RSSR, OSCAR factor scores, and the two group activities measures) was related to all inventory measures. When appropriate, the Johnson-Neyman technique was used to assess the significance of differences between the groups and locate the "region of significance."

The Johnson-Neyman Technique. The Johnson-Neyman technique is a method for assessing significance of differences in group performance.

(Johnson and Fay, 1950). It differs from analysis of covariance chiefly in that it does not require the assumption of equal regressions of pretest controls on the posttest performance for both experimental and control groups. Analysis of covariance requires this assumption and tests the significance of the difference between these two parallel regression planes. Although nominally a test of mean difference, it is actually a test of a difference assumed to be equal throughout the entire range of posttest scores. The Johnson-Neyman technique, on the other hand, permits different slopes of the two regression planes and tests whether the difference between the two is significant at any point (Johnson and Jackson, 1959, pp. 424 ff). If a significant difference is found, a region of significance can be plotted in terms of pretest measures within which differences in posttest performance are statistically significant. The line of intersection of the two regression planes is the set of scores on both pretest measures for which posttest performance in experimental and control groups is equal. This is the line of non-significance (Johnson and Hoyt, 1952).

Interpretation of the analysis is relatively straightforward. The line of non-significance represents the series of joint pretest scores for which there is no difference in posttest performance. If there is a region of significance, members of the experimental and control groups whose pretest scores fall within that region differ significantly in posttest performance. Subjects whose pretest scores

fall on the same side of the line of non-significance as the region of significance differ in performance from experimental to control group, but do not differ at a statistically significant level. There is, then, a gradient of increasing difference in performance between experimental and control groups, as the joint pretest scores vary from those of the line of non-significance toward those of the region of significance.

Other characteristics of the analysis are these:

1. Groups are matched by regression methods.

While a matched-group design offers advantages of increased power and sensitivity, it often involves the hazard that selecting subjects in order to match them between experimental and control groups makes the representativeness of the two groups questionable. Matching by regression methods, which is basic to this procedure, retains the power of a matched-group design, but eliminates the difficulty of representativeness.

2. Regions of significance are identified.

It is not necessary that two groups differ in posttest performance by similar amounts at all pretest levels. If the experimental and control groups differ significantly only for a portion of the range of the pretest scores, this region of significance will be identified and defined by the pretest scores for which the posttest difference is significant. This affords a particularly powerful method for dealing with situations in which an interaction can be expected between pretest

ability level and the method being studied as the experimental treatment. There is reason to believe that such a relationship may exist in this study.

3. Cutting scores are provided.

The region of significance provides a set of cutting scores by which experimental and control groups can be expected to differ at whatever level of significance is set. If the problem is one of estimation rather than significance, then the line of non-significance provides an alternate set of cutting scores which represent a best estimate of the dividing line between those who will profit from the experimental procedure and those who will not. In some kinds of problems, including those of this study, it can reasonably be expected that some members of the experimental group will profit from the experimental procedure, and that others will do less well than they would have as a consequence of the control procedure. The line of non-significance represents the dividing line between these two groups, expressed in pretest scores.

4. Representative sampling is less necessary.

In the usual experimental procedure, the extent to which the sample studied in the experiment represents the population from which it is drawn is crucial. The application of results depends on the extent to which a difference found consistently between experimental and control groups can be generalized to a parent population from which both groups were drawn. This is not true of data analyzed by the

Johnson-Neyman technique. This analysis provides the means of testing directly whether a significant difference is found for any portion of the two groups, comparable in terms of pretest measures. If such a difference is found, it can presumably be generalized to any other subjects whose pretest scores fall within the limits determined by the analysis. The effect of the analysis, then, is to determine the combinations of pretest scores for which a significant difference can be expected as a consequence of the experimental treatment. The results can then be generalized to any subjects whose pretest scores fall within that region. The population which can be expected to profit from the experimental procedure is defined in terms of measures used before the experimentation. Both the sample and the population which it represents are described in terms of pretest cutting scores.

Application of the Johnson-Neyman technique to these data. Preliminary analyses and development of a program for an electronic computer were completed prior to application of the analyses. Final plotting of results constituted the third step in the procedure.

1. Preliminary analysis.

Preliminary analyses were necessary to determine which relationships between predictor and criterion variables warranted application of the Johnson-Neyman technique. Adjusting posttraining criterion performance on the basis of pretest control is warranted only when the control measure is significantly related to the posttest criterion. A second

control is appropriately added only if it has a significant partial correlation with the posttest measure with the first control held constant statistically.⁵ Accordingly, the table of intercorrelations of pretest and posttest measures was reviewed. Each significant relationship ($P < .10$) in either the control or experimental groups was taken as a starting point for a Johnson-Neyman analysis. Next, holding constant in turn each relationship so identified, the partial correlation of each additional pretest measure with the posttest measure was calculated. If the resulting partial correlation was significant ($P < .10$), both pretest measures were used as controls for a Johnson-Neyman analysis. These data are summarized in Table 55 in Appendix C. Twenty-five pairs of control measures were identified by this process, and the analyses completed.

2. Development of a computer program.

The original Johnson-Neyman technique (Johnson and Hoyt, 1952) was devised to identify the precise combinations of control measures for which the posttest performance differed significantly between the two groups. A pre-existing covariance program for an electronic computer was modified to perform the required analyses. This program

5. The Johnson-Neyman technique has been generalized to the case of three control variables by Hoyt (1949) and to n controls by Abelson (1953). It was decided to restrict the analysis of this study to two controls, although recognition is made of the availability of more complex designs.

supplied data on a series of arbitrarily determined points from which the significance of differences between the two groups could be assessed. These points were selected as the mean and 2 half standard deviation points around the mean. The limits of the region of significance and line of non-significance were therefore only approximately located in terms of the pretraining measures; but the existence of a region of significance at a given probability level was clearly indicated.

An output was obtained from the computer program that gave tests of hypotheses that were necessary and preliminary to the test of the Johnson-Neyman hypotheses (Johnson and Jackson, 1959). The first of these was a simultaneous test of differences between means and slopes of the two regression planes (experimental and control). If this hypothesis was accepted, further analyses would not be dictated. The second hypothesis tested was that of equality of slope of the two regression planes. If this hypothesis was accepted, then covariance analysis, rather than the Johnson-Neyman technique would be appropriate, and the third hypothesis would test the significance of difference between means, assuming equal slopes of the two regression planes. If hypothesis two was rejected, the Johnson-Neyman hypotheses would be appropriate. Although some of these hypotheses were inappropriate in any given case, the computer program that was utilized gave an output for all of them.⁶

6. Help in development and use of this program was given by Mr. Norman Bush and other staff associates at the Computer Center, University of North Carolina, Chapel Hill. Acknowledgment is also made to the Computer Center for generous use of time in permitting a number of Johnson-Neyman techniques to be completed.

3. Results Plotted.

The output of the computer included only sums of squares and degrees of freedom. All relevant F ratios, including those related to the three preliminary hypotheses, were calculated by hand. Then, the 5 rows and 5 columns of F ratios for each of the 25 analyses were plotted to give the approximate region of significance and an estimate of the line of non-significance.

From these data, a decision was made about each hypothesis. The hypotheses tested, measures employed and statistics utilized have been summarized in Table 7.

Summary

In summary, data were collected from two groups of elementary teachers. These included inventory measures of attitude and personality, relatively objective measures of teacher and pupil classroom behavior, and questionnaire data. Following collection of these data in the spring, one group of teachers experienced a three-week training laboratory in human relations during the summer, while the other did not. The following spring, the measures were repeated to provide data on whether changes had occurred in attitudes, personality, or classroom behavior.

Analysis of the personality and attitude data was carried out by means of t tests of differences. Changes in the classroom behavior data were analyzed by the Johnson-Neyman technique in order to determine

whether teachers at different pretraining levels responded differently to the training; and to compare performance of the experimental and control groups, controlling pretraining differences by regression.

Analyses were also made of relations between teacher inventory behavior and observed classroom behavior, and reliabilities and inter-relations of selected pretraining measures. Hypotheses tested, measures and statistical analyses utilized are summarized in Table 7.

TABLE 7
Summary of Hypotheses, Measures
and Statistical Analysis

Hypothesis	Measure
Hypotheses related to attitudes toward teaching	
1. There is no change in the attitude of teachers toward the definition of teaching after intensive laboratory training in human relations.	Teacher Attitude toward Teaching
2. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to attitudes toward the definition of teaching.	Teacher Attitude toward Teaching
Hypotheses related to attitude toward pupils	
3. There is no change in the attitude of teachers toward pupils after intensive laboratory training in human relations.	Teacher Attitude toward Pupils
4. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to attitudes toward pupils.	Teacher Attitude toward Pupils
Hypotheses related to educational leadership	
5. There is no change in the concept of educational leadership held by teachers after intensive laboratory training in human relations.	Teacher Concept of Educational Leadership
6. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to concept of educational leadership.	Teacher Concept of Educational Leadership

TABLE 7
Summary of Hypotheses, Measures
and Statistical Analysis

Hypotheses	Measures	Analysis
Hypotheses related to attitude toward teaching		
1. There is no change in the attitude of teachers toward the occupation of teaching after intensive laboratory training in human relations.	<u>Bowers Teacher Opinion Inventory</u>	<u>t</u>
2. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to attitudes towards the occupation of teaching.	<u>Bowers Teacher Opinion Inventory</u>	<u>t</u>
Hypotheses related to attitude toward pupils		
3. There is no change in the attitude of teachers toward pupils after intensive laboratory training in human relations.	<u>Minnesota Teacher Attitude Inventory</u>	<u>t</u>
4. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to attitudes toward pupils.	<u>Minnesota Teacher Attitude Inventory</u>	<u>t</u>
Hypotheses related to educational leadership		
5. There is no change in the concept of educational leadership held by teachers after intensive laboratory training in human relations.	<u>Survey of Educational Leadership Practices</u>	<u>t</u>
6. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to concept of educational leadership.	<u>Survey of Educational Leadership Practices</u>	<u>t</u>

TABLE 7 (Cont'd)

Hypotheses	Measures	Analysis
Hypotheses related to personality characteristics		
7. There are no changes in personality characteristics of teachers after intensive laboratory training in human relations.	Minnesota Multiphasic Personality Inventory - 19 scales	t
8. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to personality characteristics.	Minnesota Multiphasic Personality Inventory - 19 scales	t
Hypotheses related to verbal emphasis		
9. There is no change in the classroom verbal emphasis of teachers after intensive laboratory training in human relations.	Observation Schedule and Record - Verbal Emphasis factor	Johnson-Neyman
10. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to classroom verbal emphasis.	Observation Schedule and Record - Verbal Emphasis factor	Johnson-Neyman
Hypotheses related to social structure		
11. There is no change in the social structure of the classroom of teachers after intensive laboratory training in human relations.	Observation Schedule and Record - Social Structure factor	Johnson-Neyman
12. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to social structure of the classroom.	Observation Schedule and Record - Social Structure factor	Johnson-Neyman

TABLE 7 (Cont'd)

Hypotheses	Measures	Analysis
Hypotheses related to Emotional Climate in the classroom		
13. There is no change in Emotional Climate of the classroom of teachers after intensive laboratory training in human relations.	Observation Schedule and Record - Emotional Climate factor	Johnson-Neyman
14. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to Emotional Climate of the classroom.	Observation Schedule and Record - Emotional Climate factor	Johnson-Neyman
Hypotheses related to group problem solving skills of pupils		
15. There is no change in the group problem solving skills of pupils of teachers after intensive laboratory training in human relations.	<u>Russell Sage Social Relations Test</u>	Johnson-Neyman
16. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to group problem solving skills.	<u>Russell Sage Social Relations Test</u>	Johnson-Neyman
Hypotheses related to <u>Teacher Reported Group Activities</u>		
17. There is no change in <u>Teacher Reported Group Activities</u> after intensive laboratory training in human relations.	<u>Teacher Reported Group Activities</u>	Johnson-Neyman
18. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to <u>Teacher Reported Group Activities</u> .	<u>Teacher Reported Group Activities</u>	Johnson-Neyman

TABLE 7 (Cont'd)

Hypotheses	Measures	Analyses
Hypotheses related to <u>Staff Rated Group Activities</u>		
19. There is no change in <u>Staff Rated Group Activities</u> of teachers after intensive laboratory training in human relations.	<u>Staff Rated Group Activities</u>	Johnson-Meyman
20. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to <u>Staff Rated Group Activities</u> .	<u>Staff Rated Group Activities</u>	Johnson-Meyman

CHAPTER IV

RESULTS

As indicated in Chapter 3, analyses were performed on both pretraining and posttraining data. The pretraining inventory data were related to all measures of teacher and pupil classroom behavior. These results were felt to be of particular interest since the typical study has analysed relationships between inventory measures and ratings of teacher behavior rather than observed teacher-pupil behavior (Ryans, 1960). Next, biographical data were analysed in terms of two measures of the teacher's use of group activities in the classroom. Finally, analyses of the posttraining data were organised around the hypotheses of the study, and constitute the major portions of this chapter.

Analyses of Pretraining Results

Inventory results related to classroom behavior measures

Table 8 shows the relationships between the different attitude and personality measures and the six classroom behavior measures. Emotional Climate (EC) correlated with the MTAI ($P < .05$), the BTOI ($P < .10$) and the Social Introversion (SI) scale of the MMPI ($P < .10$). Teachers with permissive, democratic attitudes towards pupils and those who were relatively well satisfied with the profession of teaching tended to have a warm emotional classroom climate. Further, the directionality of the SI scale was such that extroverted teachers also tended to have a warm emotional climate.

Table 8

Correlations of Teacher Attitude and Personality Measures with Classroom Behavior

	Observation Schedule and Record		Russell Sage Social Relations Test		Group Activities	
	Emotional Climate	Verbal Emphasis	Social Structure	Teacher Reported	Staff Rated	
<u>Bowers Teacher Opinion Inventory</u>						
Inventory	.218*	-.023	.138	(.190)	-.046	-.055
<u>Minnesota Teacher Attitude Inventory</u>						
Survey of Educational Leadership Practices	.290**	.016	.174	.066	-.046	-.178
Ideal	-.076	-.025	.025	-.283**	-.185	-.109
Actual	-.185	-.036	-.035	-.103	.063	.314**
Discrepancy	.107	.018	(.526**)	.220*	-.140	-.298**
<u>Minnesota Multiphasic Personality Inventory</u>						
L	-.074	-.137	-.159	-.032	.064	-.136
F	-.157	.248*	.043	-.035	-.039	.027
K	.150	.222*	-.226*	-.039	.065	-.130
Ma	.024	.065	-.163	-.332**	.061	-.233*
D	.025	.071	-.217*	(.522**)	.017	-.120
Hy	.047	.123	-.233*	-.309**	.303**	-.222*
Pd	.215	.326**	-.506***	-.132	.030	.023
Mf	.066	-.110	.157	-.138	.051	-.174
Pa	.128	.119	-.232*	-.063	.118	-.224*
Pt	.167	(.486**)	(.558**)	-.343***	.236*	-.132
Sc	.154	.255**	-.356***	-.271**	.184	.048
Si	-.238*	.034	.062	-.165	-.058	-.174
Ma	.171	(.412**)	-.084	-.004	-.029	-.139
A	-.042	-.051	-.027	-.119	.111	.203
R	-.076	.040	-.091	-.049	-.351***	.155
Ego Strength (ES)	.140	-.005	.062	.254*	.197	-.113
Hostility (HO)	-.088	.051	-.003	-.024	-.048	-.290*
Pharisaic Virtue (PV)	-.141	-.180	-.029	-.314**	.090	-.238*
Teacher Attitude	-.135	-.070	-.024	-.187		

* $P < .10$ ** $P < .05$ *** $P < .01$

() Eta Coefficients

Six significant relationships were found between Verbal Emphasis (VE) and the various inventory measures. The highest relationship was with the Psychasthenia (Pt) scale of the MMPI ($P < .01$). The curvilinear shape of this relationship indicated that more reliance on traditional teaching methods was found among teachers who were slightly above the mean on Pt as compared with teachers who were either somewhat higher or lower. Teachers at either extreme on Pt tended to encourage more pupil interaction in their classrooms. There was also a moderately high nonlinear relationship with the Hypomania key (Ma) ($P < .05$). Although generally the higher the score on Ma the higher the VE score, teachers having the very highest Ma scores tended to rely less on verbal emphasis. Somewhat lower relationships were found between VE and the MMPI scales of Psychopathic Deviate (Pd) and Schizophrenia (Sc) ($P < .05$). Teachers who might be characterized as impulsive and irresponsible, or withdrawn and lacking in self-confidence tended to rely on written verbal methods. There were also positive relationships ($P < .10$) between VE and scores on F and K, probably reflecting confusion and defensiveness respectively.

Social structure (SS), the tendency for the classroom to be organized in sub-groups, was predicted by the Discrepancy score of the Survey of Educational Leadership Practices ($P < .05$). The Discrepancy score was an indication of the degree to which the teacher perceived less freedom to teach democratically than his ideal. The form of the relationship between the Discrepancy score and SS showed that the

greatest number of subgroups occurred in classrooms of teachers whose Discrepancy scores were either small or large. Those teachers who clustered about the mean tended to have fewer subgroups in their classrooms. The Psychasthenia (Pt) scale of the MMPI also correlated with Social Structure ($P < .05$). The relationship was similar to that between Pt and Verbal Emphasis; i.e., teachers who were just above the mean had the fewest subgroups in their classrooms, and teachers who were either above or below the mean had a larger number of group activities. There was also a significant correlation ($P < .01$) between SS scores and the Psychopathic deviate (Pd) scale and the Schizophrenia (Sc) scale. Relatively few subgroups were found in classrooms of teachers characterized either as immature, irresponsible, and asocial (Pd), or insecure and lacking self-confidence (Sc). There were suggestions of negative relationships ($P < .10$) between SS and K, Depression (D), Paranoia (Pa) and Hysteria (Hy), indicating that defensive, anxious, suspicious teachers with high social acceptance needs tended to have fewer pupil subgroups in their classrooms. It should be noted that the MMPI keys indicative of maladjustment tended to show negative relationships with SS. The general picture that emerged indicated clearly that subgroups occurred in classrooms of mature, responsible, well-adjusted teachers more frequently than in classrooms of less well-adjusted teachers.

As might be expected, findings similar to those above appeared for the Russell Sage Social Relations Test (RSSR). Among the attitude measures, the ideal score of the Survey of Educational Leadership

Practices tended to be positively related to social skills of pupils. Teachers whose ideal of education was relatively democratic tended to have pupils whose social skills were greater than the pupils of teachers whose ideal was less democratic. Among the personality measures, the largest positive relationship was found with Depression (D) ($P < .01$). Although the relationship was nonlinear, the general form indicated lower social skills among pupils of more anxious teachers. Moderately high negative relationships ($P < .05$) were found with Ho, Hy, Sc, and Pd, indicating that pupils tended to have lower social skills in the classrooms of teachers who were more concerned about their own body processes, high in social acceptance needs, timid, withdrawn, and impulsive or irresponsible. There was a suggestion of a positive relationship ($P < .10$) with Ego Strength (ES) and the Survey Discrepancy score.

Teacher Reported Group Activities correlated with three MFT scales: Pd ($P < .05$), Sc ($P < .10$), and ES ($P < .05$). These relationships indicated that teachers who were impulsive and immature, insecure and withdrawn, or lacking in social adaptability, reported higher numbers of group activities in their classrooms. The general pattern of positive and negative relationships is also of interest. Teacher Reported Group Activities generally correlated negatively with measures of permissive teacher-pupil relationships and well-adjusted personality characteristics. Measures indicative of authoritarian teacher behavior and maladjustment related positively to Teacher Reported Group Activities.

Such data suggest something about this latter measure. Although speculative, it seems reasonable that a teacher may go to some trouble to report numerous and varied activities which she characterizes as group activities because of a feeling of insecurity, and a need to justify her skill in teaching. To over simplify considerably, these reports may be a joint function of the use of group activities and the defensiveness of the teacher in reporting them, and thus represent safe, conforming behavior on the part of the teacher. This defensive element presumably introduced positive relationships with keys that generally indicated maladjustment.

Staff Rated Group Activities correlated significantly with the scores from the Survey of Educational Leadership Practices ($P < .05$). The positive correlation of the Actual score indicated that teachers who perceived themselves to be led democratically by the school administration used a greater number of group activities. The relation with the Discrepancy score indicated that teachers who felt less freedom than their ideal tended to use fewer group activities of this sort. Five MMPI keys, D, Pd, Pt, Pv, and Ia, correlated negatively ($P < .10$) with Staff Rated Group Activities. These relationships suggested that teachers characterized by anxiety and depression, impulsiveness and immaturity, obsessive-compulsive tendencies, and rigidly moralistic and hostile reaction patterns tended to use fewer Staff Rated Group Activities.

In contrast with Teacher Reported Group Activities, negative relationships were generally found between inventory scores and Staff Rated Group Activities.

Biographical data related to use of group activities

Biographical data were analyzed only in terms of two of the criteria: Teacher Reported Group Activities and Staff Rated Group Activities. Many of the items of information showed no difference between the groups for either measure: marital status; work outside of education or opportunity for it; membership in the local teachers association, TEA, NEA, or other teacher organizations, or attendance at meetings; having held office, the nature of the office, or the number of offices held; reading professional publications, total publications read, specific journals read; grade level taught, the reasons for teaching that grade level, or the grade level for which the teacher was trained. None of these differentiated between teachers for either measure. Items of information that did differentiate included experience, post high school education, and participation in community groups.

As shown in Table 9, years of experience in teaching showed complex relationships with Teacher Reported Group Activities.

Table 9

Relation of Use of Teacher Reported Group Activities and Years of Teaching

<u>Years Taught</u>	<u>N</u>	<u>Mean Group Activities (Arbitrary Units)</u>
0 - 4	18	4.33
5 - 9	13	2.69
10 - 14	7	2.29
15 - 19	4	5.25
20 - 24	5	4.20
25 - 29	6	4.67
30 - 34	4	4.50

Table 10 shows additional analyses completed. Significant proportions of variance were associated with linear, quadratic, and cubic curves, indicating that the pattern of use of group activities changed with experience.

Table 10

Cubic Polynomial Fitted to use of Teacher Reported
Group Activities and Years of Teaching

Source of Variation	df	SS	MS	F
Regression				
Linear	1	5.7496	5.7496	2.83*
Quadratic	1	10.9134	10.9134	5.38**
Cubic	1	8.6714	8.6714	4.27**
Total Regression	3	25.3344	8.4448	4.16**
Deviations from Regression	3	26.4356	8.8119	4.34***
Within	47	95.55	2.03	
Total	53	147.33		

* $P < .10$

** $P < .05$

*** $P < .01$

Teacher Reported Group Activities were at a high level during the first four years of teaching but then fell to a low level which continued from the fifth through the fourteenth years of teaching. There was then a return to a high level followed by a lower level from the twentieth year through the thirty-fourth.

Several relationships between the biographical data and Staff Rated Group Activities were significant. The number of years of post

high school education completed by a teacher discriminated ($P < .10$), and appeared to do so on the basis of whether or not the teacher had taken work beyond the Bachelor's degree. If a teacher had taken work beyond the Bachelor's degree, he was more likely to participate in group activities of staff-rated nature.

Teachers who belonged to two or more community groups were more often high in group activities than teachers who belonged to one or none ($P < .05$). Membership in both PTA and church rather than membership in one or neither was characteristic of teachers high in the use of group activities ($P < .10$). Teachers in the high group of Staff Rated Group Activities more often read lay publications than did teachers in the low group ($P < .05$).

Summary Discussion

When the relationships between the inventory measures and the classroom behavior measures were considered together, a number of interesting findings emerged. In general, it appeared that classroom Social Structure and pupils' social relations skills correlated most closely with attitude and personality measures; Verbal Emphasis correlated less well, and Emotional Climate correlated least of all. Further, it was of interest that among the observational measures of the classroom that correlated most highly with the inventories, "good" teaching tended to be associated with "better adjusted" personality characteristics.

Three keys from the MMPI (Pd, Pt, Sc) each correlated with four of the six classroom behavior measures at a significant level. Two others,

Survey Discrepancy, and MMPI (D) each related with three of the six classroom behavior measures. Already discussed has been the general trend of negative correlations between measures of maladjustment and and Social Structure, the Russell Sage Social Relations Test, and Staff Rated Group Activities. Positive correlations were found between measures of maladjustment and Verbal Emphasis, Emotional Climate, and Teacher Reported Group Activities. All these relationships between maladjustment measures and classroom behavior conformed to expectations, except the relationship with Emotional Climate. It appeared reasonable that well-adjusted teachers should utilize more group procedures and fewer written verbal procedures and that their pupils should achieve greater social skills than the less well-adjusted teachers. It is not clear why teacher maladjustment should be associated with warmer Emotional Climate, but this pattern of results may be attributed to chance.

With regard to the analysis of group activities as related to biographical data, the meaning of the findings is open to a number of different interpretations. The finding that use of group activities decreased after initial experience may be an indirect measure of teacher morale. Similar changes have been found in studies of industrial morale (Viteles, 1953) and also in longitudinal studies of change in MTAI scores (Medley, Mitzel, and Rabinowitz, 1959). If this hypothesis is tenable, then here is evidence that the teacher initially started with very positive attitudes; that forces present in the school situation had a

dampening influence on her enthusiasm, and that she only recovered from the effects after a relatively long period of time. An alternate interpretation is that perhaps all but the confirmed optimists have left teaching. Finally, some combination of these two suggestions may represent the better explanation.

It is dismaying to think of the number of teachers who may be in this period from the fifth to the fifteenth year. What the lower level beyond the twentieth year may have indicated was not so clear. Perhaps it represents decreased motivation with age; perhaps for some a beginning to look forward to retirement; perhaps a degree of security and independence reached so that pressure to conform becomes less important.

An alternative hypothesis is that Teacher Reported Group Activities reflected defensiveness and insecurity. The pattern of relationships with MMPI keys suggests that such may be the case. Teachers enter the profession uncertain of their skills, and this uncertainty dissipates during or after the first four years. This is followed by approximately ten years of security and confidence, following which defensiveness and insecurity are again reflected. It is interesting to note that this point in teachers' years of service probably falls between ages 35 and 45. This is often a stressful period. Although there is some decrease in group activities reported in the years following, the over-all level remains much higher than that of the fifth through fourteenth years. Although quite opposite in implication from the hypotheses that Teacher Reported Group Activities reflect morale, this latter interpretation

seems equally tenable.

In conclusion, a number of final comments seem to follow from these data:

1. The variability in kinds of factors that correlate with classroom behavior measures demonstrates again something that has been known for a long time: the behavioral function of teaching is exceedingly complex; a teacher's use of group activities is a many-faceted situation, and is complicated by definition difficulties. It should be remembered that there was a lack of relationship between the various measures of classroom behavior. However, when the independence of these measures is considered, there is a surprising consistency in the specific inventory measures that do relate to these uncorrelated behaviors.
2. The use of "safe" group activities by teachers should not be accepted at face value as indicative of classroom competency. These data supported the idea that teachers need to be secure as individuals, and that the teacher's personality determines the kind of classroom activities she uses. The data further suggested that personality factors are important determiners of teacher effectiveness.
3. Few biographical items related to teacher or pupil classroom behavior. Membership in community groups, post high school education, and work beyond the minimum Bachelor's degree seemed

to characterize teachers who utilized group activities involving pupil-pupil relationships. Years of teaching experience were related to the use of Teacher Reported Group Activities. Data derived from sources other than biographical information seem more important when the total number of significant correlations is considered in relationship to the total number of completed analyses.

Somehow, it seems that ways and means must be found to help teachers learn how to establish and maintain the kind of interpersonal relationships that will promote pupil growth. While these data indicated the characteristics of teachers who maintained warm classroom climate and utilized group activities without special instruction, other research is needed that will show how teachers can improve their skills in relating to pupils. Perhaps special instruction can supplement measurable personal characteristics; the analyses of posttraining data were directed toward this problem.

Analysis of Posttraining Results

Posttraining results were analyzed in two ways. First the inventory data were analyzed in terms of change scores from pretraining to posttraining for the experimental group, and posttraining comparisons were made between the experimental and control groups. Then the Johnson-Neyman technique was utilized to test the significance of change in the six classroom behavior measures. These results are organized around the hypotheses discussed in Chapter 3.

Attitude and Personality Inventory Results

Hypotheses related to attitude toward teaching.

1. There is no change in the attitude of teachers toward the occupation of teaching after intensive laboratory training in human relations.
2. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to attitude toward the occupation of teaching.

The results related to these hypotheses are those of the Bowers Teacher Opinion Inventory (BTOI). The data of Table 11 show that change in the experimental group from pretraining to posttraining did not reach significance. The control group change was almost as large; comparison of the two change scores did not approach significance.

Both hypotheses were accepted.

Hypotheses related to attitude toward pupils.

3. There is no change in the attitude of teachers toward pupils after intensive laboratory training in human relations.
4. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to attitude toward pupils.

The results related to these hypotheses are those of the Minnesota Teacher Attitude Inventory (MTAI). It can be seen from Table 11 that only one comparison was statistically significant ($P < .05$). The experimental group was characterized by a change toward warmer, more permissive attitudes toward pupils, but did not change significantly more in that direction than did the control group.

Table 11

Comparison of Change in Attitude Scores for
Experimental and Control Groups, and Experi-
mental Group from Pretraining to Posttraining

Attitude Measure	Mean Change Score 1959 to 1960		t Tests	
	Control (N=29)	Experi- mental (N=28)	Experimental vs Control	Experimental Pretraining to Posttraining
<u>Teacher Opinion Inventory</u>	2.53	3.12	.23	1.87
<u>Minnesota Teacher Attitude Inventory</u>	1.28	10.48	1.88	2.47*
<u>Survey of Educa- tional Leadership Practices</u>				
Ideal	1.28	3.08	2.81	3.21**
Actual	.91	-.07	.41	.04
Discrepancy	-.03	3.13	1.08	1.39

* $.01 < P < .05$

** $.001 < P < .01$

On the basis of this evidence, hypothesis 3 is rejected, but hypothesis 4 is accepted.

Hypotheses related to concept of educational leadership.

3. There is no change in concept of educational leadership held by teachers after intensive laboratory training in human relations.
6. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to concept of educational leadership.

The results related to these hypotheses are those of the Survey of Educational Leadership Practices (Survey). The data indicated that teachers had a significantly more democratic ideal of educational leadership after the training experience than before ($P < .01$). When the change of the experimental group was compared with the change of the control group, the difference did not reach significance. It is not clear why the control group changed. No change occurred in the teacher's perception of her freedom. Although the discrepancy between the ideal and the perceived freedom of the teacher appeared to increase from pretraining to posttraining, the change was not statistically significant.

Although hypothesis 5 was rejected, hypothesis 6 was accepted.

Hypotheses related to personality characteristics.

7. There are no changes in personality characteristics of teachers after intensive laboratory training in human relations.
8. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to personality characteristics.

The results related to these hypotheses are those of the Minnesota

Multiphasic Personality Inventory. As the data of Table 12 indicate, no significant differences appeared for any of the nineteen scales, for either hypothesis. Both hypotheses were accepted.

Summary of inventory results. In summary, trained teachers became more accepting and permissive in their attitudes towards pupils and more democratic in their ideal of educational leadership; the change in attitude towards pupils was significantly greater among trained teachers than control teachers, but the change in ideal of educational leadership was not. No other significant changes were found.

Classroom Behavior Measures Results

Hypotheses related to Verbal Emphasis (VE)

9. There is no change in the Verbal Emphasis of teachers after intensive laboratory training in human relations.

As Table 13 indicates, the t test of this hypothesis did not approach significance. No mean change in Verbal Emphasis was shown for the experimental teachers as a consequence of the training experience. Hypothesis 9 was accepted.

10. There is no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to classroom Verbal Emphasis.

Two tests of hypothesis 10 were made controlling different pre-training measures by the Johnson-Neyman technique (see Chapter 3).

a. Verbal Emphasis posttraining, controlling VE and Sc pretraining.

In the interpretation of these results it should be remembered that a high score on VE suggests a traditional kind of teaching as indicated by a higher proportion of teacher responses, as compared with pupil

Table 12

Comparison of Change in Personality Test Scores for
Experimental and Control Groups and Experimental
Group from Pretraining to Posttraining

Measure	Mean Change Score 1939 to 1940		$\bar{t}$ Test ¹	
	Control (N=29)	Experi- mental (N=25)	Control vs Experimental	Experimental Pretraining to Posttraining
<u>Minnesota Multiphasic Personality Inventory</u>				
K	-.09	-1.86	.73	1.00
F	-.20	-.16	.03	.20
Ma	-.78	1.24	.91	.67
D	-2.61	.82	1.75	.38
Hy	-.47	-1.44	.52	.37
Pd	-1.03	-.60	.19	.39
Mf	.15	-1.76	.90	1.41
Pa	.42	.72	.13	.51
Pt	-.34	-.76	.27	.51
Sc	-.30	-1.20	.39	.83
Si	-.61	-.40	.62	.36
Ma	3.15	.76	.99	.61
L	-.82	-.80	.01	.76
A	1.22	-.28	.85	.21
R	-1.96	-.48	.82	.45
ES	1.35	2.20	.46	1.30
Ho	1.98	2.40	.21	1.68
Pv	1.25	-.40	.73	.16
Ta	1.98	.96	.48	.54

1. For all $\bar{t}$ values, $P > .05$

Table 13

Comparison of Change in Classroom Behavior Scores
for Experimental and Control Group

Measure	Mean Change Score 1959 to 1960		t Tests ^a	
	Control	Experi- mental	Control	Experimental
	(N=28)	(N=23)	Pre- to Posttraining	Pre- to Posttraining
<u>Observation Schedule and Record</u>				
Emotional Climate	3.61	2.61	.47	.37
Verbal Emphasis	2.04	3.00	.30	.32
Social Structure	-2.29	3.78	.32	.48
<u>Russell Sage Social Relations Test</u>	.54	1.57	.04	.14
<u>Teacher Reported Group Activities</u>	.79	.39	.08	.05
<u>Staff Rated Group Activities</u>	3.86	-1.91	.39	.20

a. For all t values, $P > .05$

responses and a higher proportion of individual pupil work with written material. The effectiveness of the training experience would be expected to be reflected in a lowered VE score. Several conclusions appear to follow from a study of Table 14 .

1. Two regions of significance were found, one characterized by high VE and low Sc pretraining scores, the other by low VE and high Sc pretraining scores. In the first of these, experimental posttraining VE scores were significantly lower than those of the control group. Subjects who were initially low on Sc but high on VE were significantly influenced by the training, in the direction of lower VE posttraining scores, and toward using less traditional means of teaching.

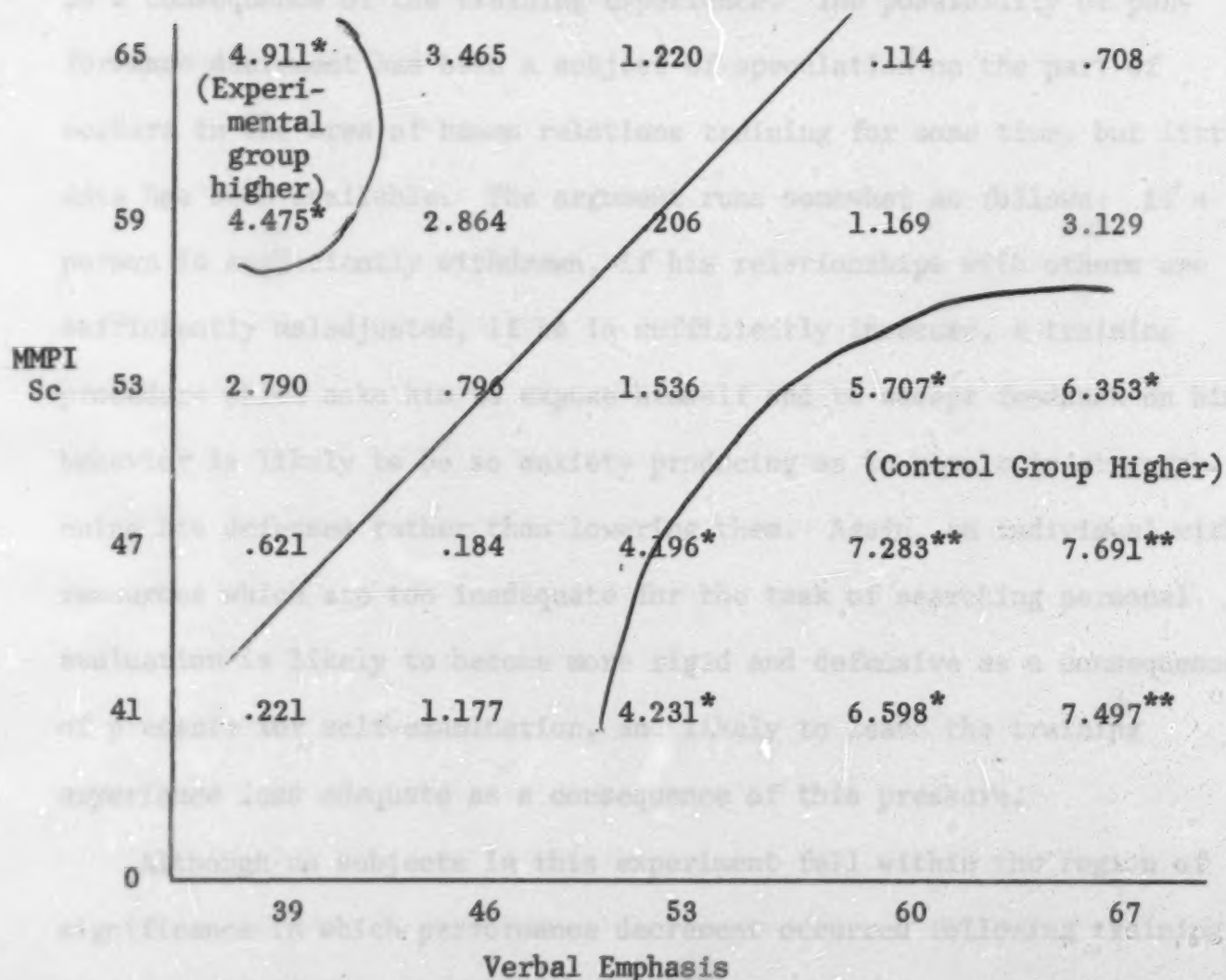
2. As a kind of neutral point in this trend of change resulting from the training experience, the slope of the line of non-significance reflected a tendency for people who were higher on Sc to be less likely to change in a desired direction (i.e., toward lowered VE scores). That is, the higher the Sc score, the less likely that change in the desired direction will result from the training procedure.

3. Sc held constant, the higher the initial VE score, the more likely the subject is to change in the direction of lowered VE scores.

4. When both pretraining measures were examined simultaneously in relation to the trend represented in the plot, it appeared that the difference between Sc and VE scores for a given teacher was an approximation of his likelihood of change from teaching. To the extent that VE was higher than Sc, a given teacher was likely to change his method of teaching as a consequence of the training experience.

Table 14

Johnson-Neyman Tests of Significance of Differences
Between Groups in Verbal Emphasis Controlling
Pretraining Verbal Emphasis and MMPI Sc¹



* = P.05 (4.055 for 1,45 df)

** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations)

5. The existence of the region of significance in the upper left hand corner of the plot (low VE, high Sc) indicated that subjects who scored within that region could be expected to teach more traditionally as a consequence of the training experience. The possibility of performance decrement has been a subject of speculation on the part of workers in the area of human relations training for some time, but little data has been available. The argument runs somewhat as follows: if a person is sufficiently withdrawn, if his relationships with others are sufficiently maladjusted, if he is sufficiently insecure, a training procedure which asks him to expose himself and to accept feedback on his behavior is likely to be so anxiety producing as to result in strengthening his defenses rather than lowering them. Again, an individual with resources which are too inadequate for the task of searching personal evaluation is likely to become more rigid and defensive as a consequence of pressure for self-examination, and likely to leave the training experience less adequate as a consequence of this pressure.

Although no subjects in this experiment fell within the region of significance in which performance decrement occurred following training, subjects did fall to the upper left of the line of non-significance. This indicates that their observed performance declined, even though the decline was not great enough to be statistically significant.¹ Since these were

1. The Johnson-Neyman technique solves both the problem of estimation, and the problem of significance. The above statement indicates that a difference in performance favoring the control group was found in the specified range of joint pretraining scores (estimation) but that the difference was not significant.

a group of volunteer teachers, it seems likely that any general application of this kind of training to people who would not have volunteered runs the risk of including people who would fall within this region of significance and who would show some measure of performance decrement as a consequence of the training experience. This would seem to be a finding of considerable importance.

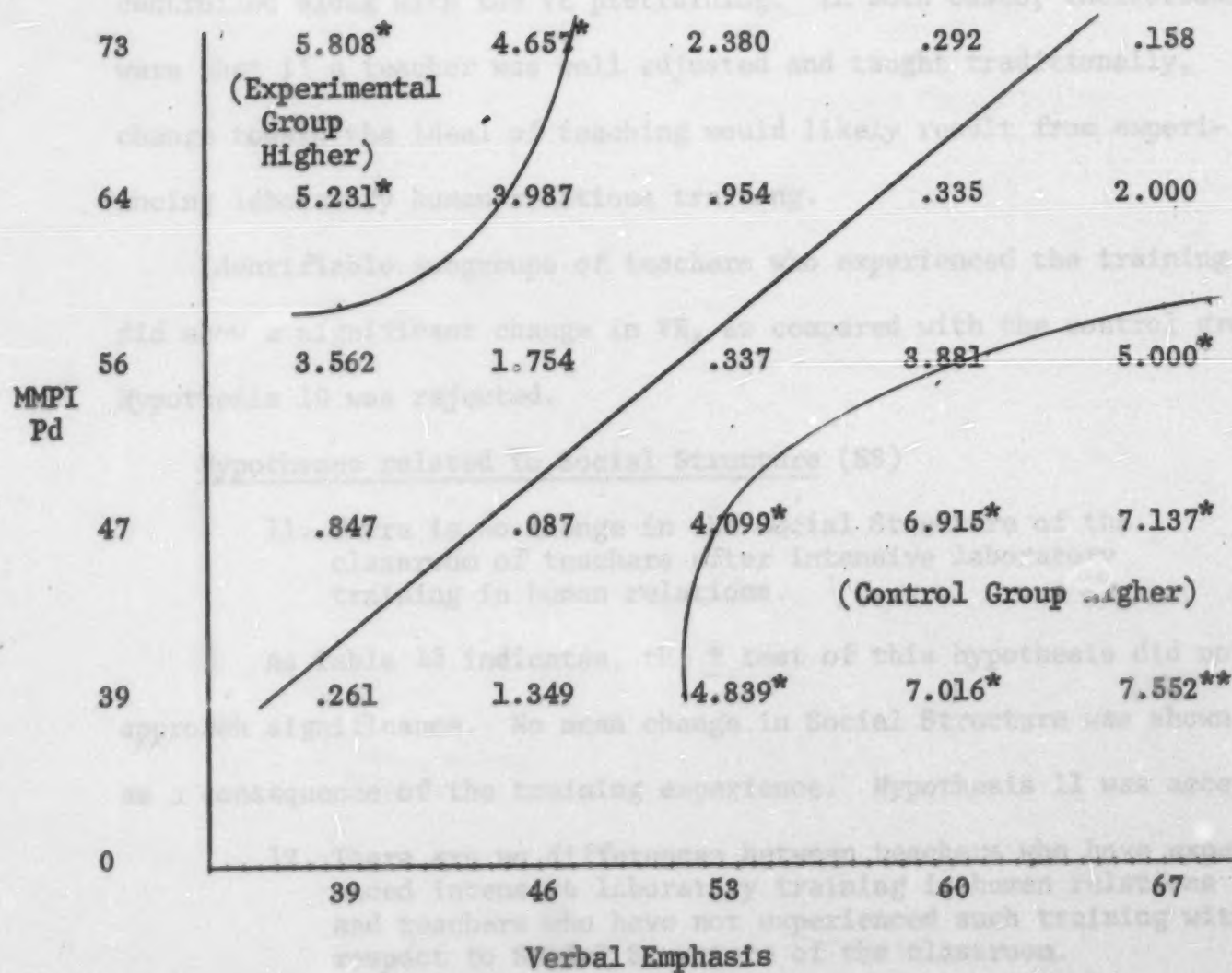
In summary, this analysis indicated that particular subjects falling along the line of non-significance (those whose scores on VE and Sc are similar) apparently did not profit from the training, and subjecting them to such training is a waste of resources. People high on VE but low on SC taught less well following training in terms of the ideal of teaching described in Chapter 1. A single rough statement of the two trends might be that a subject is more likely to profit from the training as his VE pretraining score is higher than his Sc score.

b. VE posttraining, controlling VE and Pd pretraining.

Two regions of significance were found in this analysis. In one, the experimental group performed at a significantly higher level than the control group; in the other, the control group performed at a significantly higher level than the experimental group. Less traditional teaching on the part of the experimental group was associated with low scores on Pd and moderate to high scores on VE pretraining. As noted above, a high score on Verbal Emphasis indicated use of more time spent in pupil writing and silent reading assignments, whereas a low score indicated more social interaction and participation on the part of pupils

Table 15

Johnson-Neyman Tests of Significance of Differences
Between Groups in Verbal Emphasis Controlling
Pretraining Verbal Emphasis and MMPI Pd¹
(F ratios)



* = P.05 (4.055 for 1,45 df)

** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

in planning and accomplishing the activities of the classroom. By the rationale of the study a low score is "good." Throughout much of the range of the two pretraining measures, Pd appeared to be approximately as important in predicting later performance as VE. The findings of this analysis were quite similar to the preceding one in which Sc was controlled along with the VE pretraining. In both cases, indications were that if a teacher was well adjusted and taught traditionally, change toward the ideal of teaching would likely result from experiencing laboratory human relations training.

Identifiable subgroups of teachers who experienced the training did show a significant change in VE, as compared with the control group. Hypothesis 10 was rejected.

Hypotheses related to Social Structure (SS)

11. There is no change in the Social Structure of the classroom of teachers after intensive laboratory training in human relations.

As Table 13 indicates, the t test of this hypothesis did not approach significance. No mean change in Social Structure was shown as a consequence of the training experience. Hypothesis 11 was accepted.

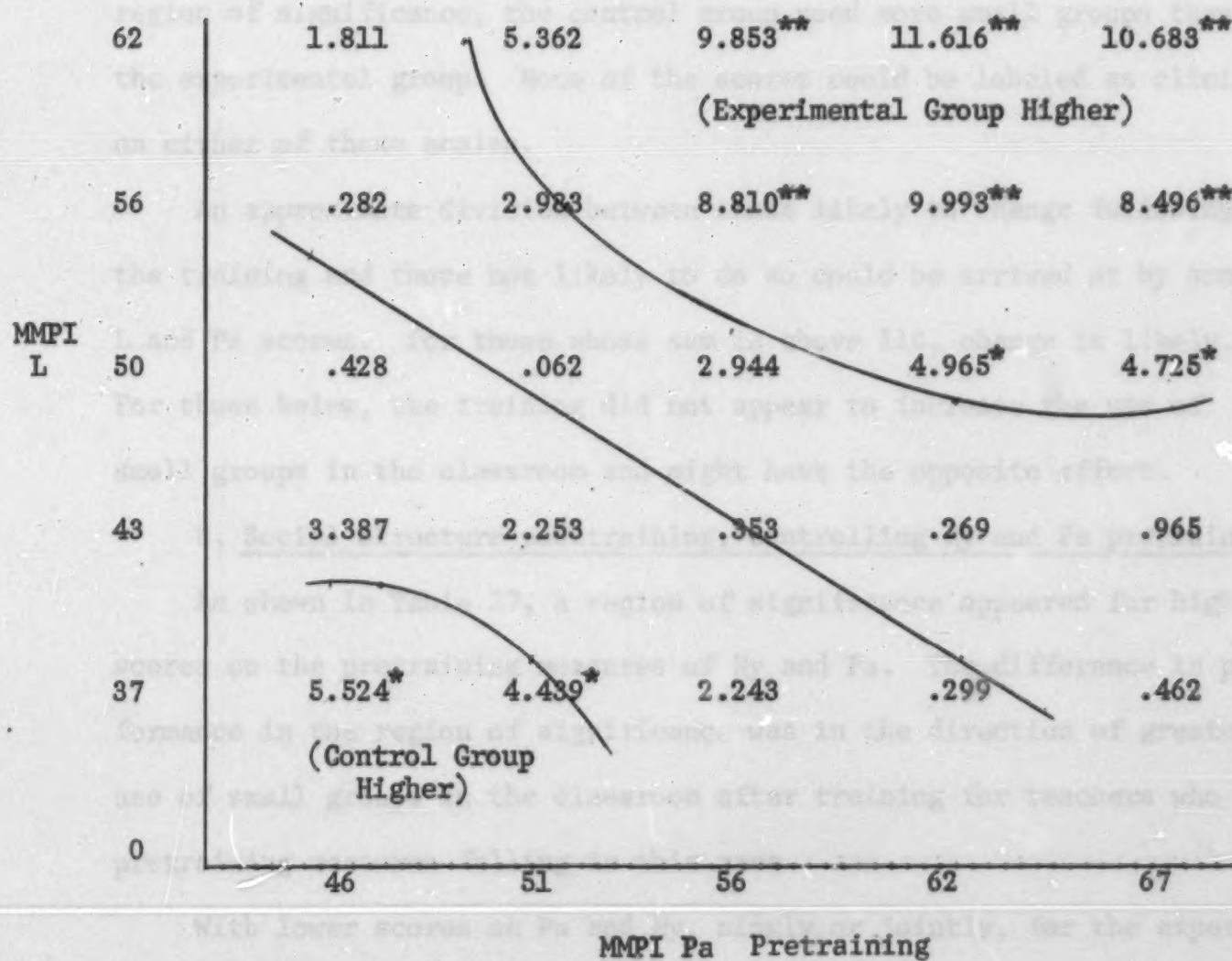
12. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to Social Structure of the classroom.

a. Social Structure posttraining, controlling Pa and L pretraining.

In Table 16 two regions of significance were found: one was characterized by high scores, the other by low scores on both measures. In the first region, the experimental group was significantly higher

Table 16

Johnson-Neyman Tests of Significance of Differences
Between Groups in Social Structure
Controlling MMPI Pa and L¹
(F ratios)



* = P.05 (4.055 for 1,45 df) .

** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

than the control group on SS posttraining. To the extent that a person was simultaneously high on both control measures, he was likely to respond to the training experience by the greater use of pupil subgroups in the classroom. With reference to the inventory norms, this region of significance began roughly at $T = 55$ on the Pa key. In this region of significance, the control group used more small groups than the experimental group. None of the scores could be labeled as clinical on either of these scales.

An approximate division between those likely to change following the training and those not likely to do so could be arrived at by summing L and Pa scores. For those whose sum is above 110, change is likely. For those below, the training did not appear to increase the use of small groups in the classroom and might have the opposite effect.

b. Social Structure posttraining, controlling Hy and Pa pretraining.

As shown in Table 17, a region of significance appeared for high scores on the pretraining measures of Hy and Pa. The difference in performance in the region of significance was in the direction of greater use of small groups in the classroom after training for teachers who had pretraining measures falling in this area.

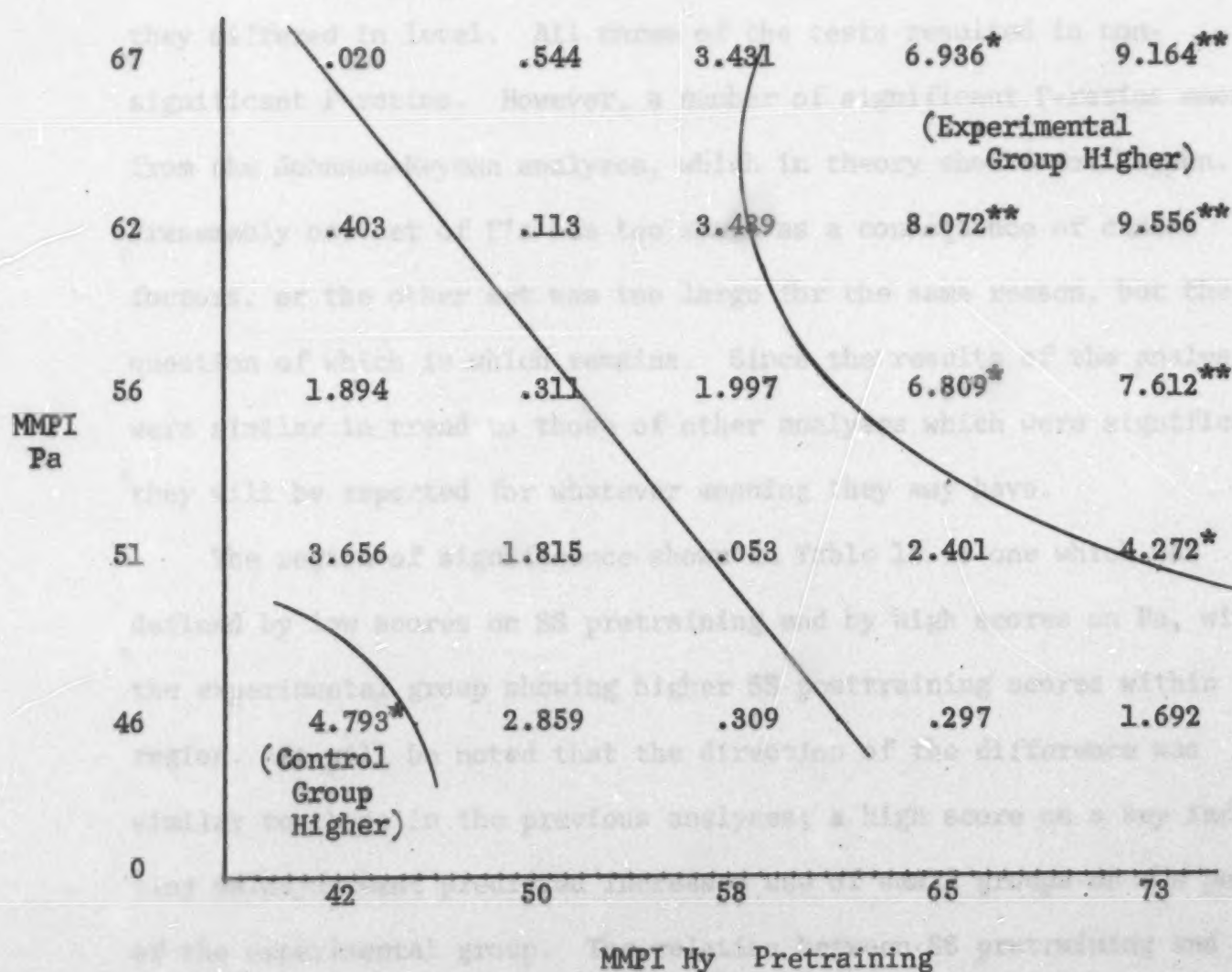
With lower scores on Pa and Hy, singly or jointly, for the experimental group the trend was in the direction of decreased use of small groups as a consequence of the training, and control group members showed higher levels of small group organization in the classroom.

c. Social Structure posttraining controlling SS and Pa pretraining.

It is difficult to know what to make of the data of this analysis

Table 17

Johnson-Neyman Tests of Significance of Differences
Between Groups in Social Structure
Controlling MMPI Hy and Pa¹
(F ratios)



* = P.05 (4.055 for 1,45 df)
** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

since in a sense they are not internally consistent. As indicated in Chapter 3, a series of significance tests were done in sequence by the computer. The first examined the question of whether the two regression planes differed significantly either in slope or in level. The second test examined whether they differed in slope. The third tested whether they differed in level. All three of the tests resulted in non-significant F-ratios. However, a number of significant F-ratios emerged from the Johnson-Neyman analyses, which in theory should not happen. Presumably one set of F's was too small as a consequence of chance factors, or the other set was too large for the same reason, but the question of which is which remains. Since the results of the analysis were similar in trend to those of other analyses which were significant, they will be reported for whatever meaning they may have.

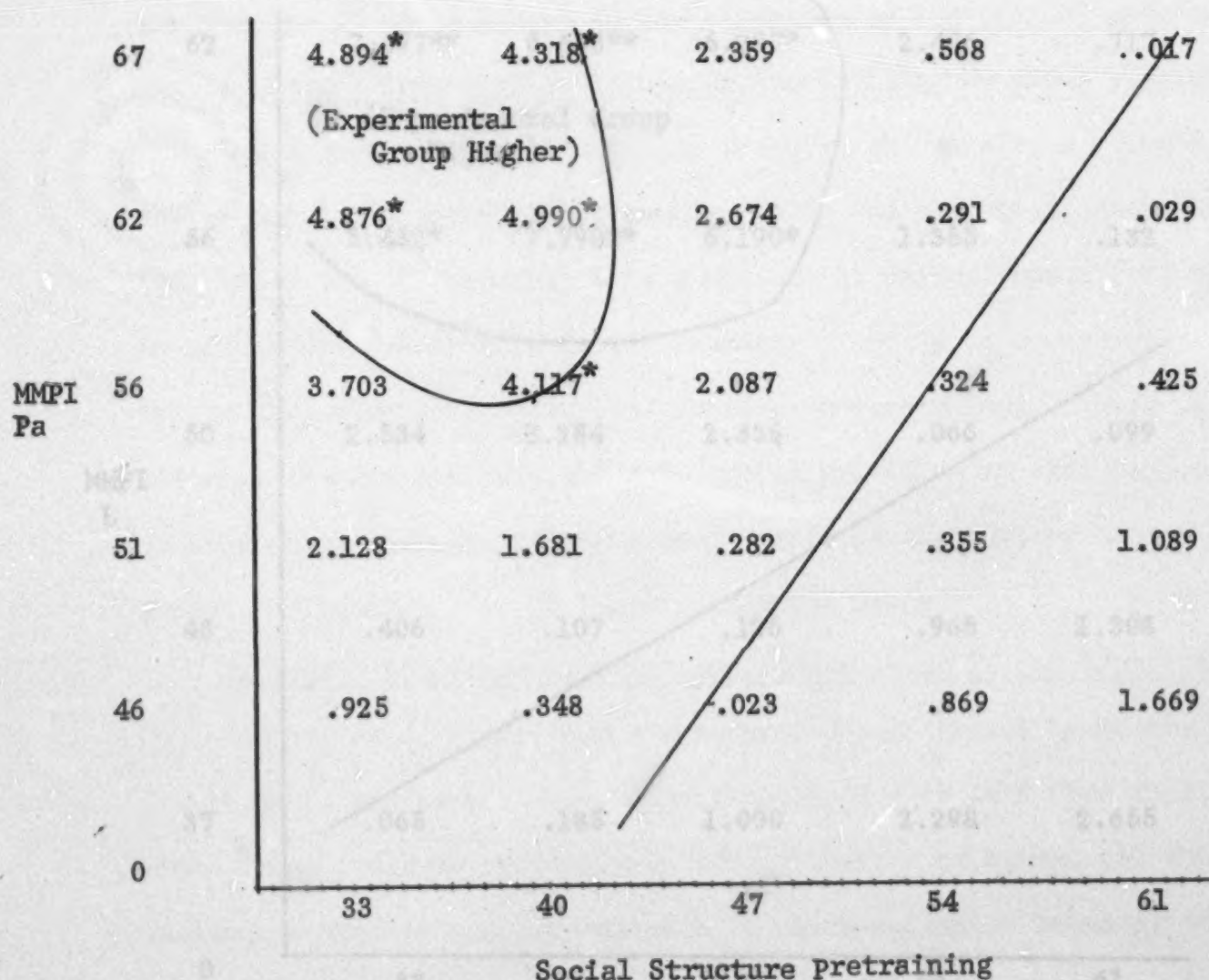
The region of significance shown in Table 18 is one which was defined by low scores on SS pretraining and by high scores on Pa, with the experimental group showing higher SS posttraining scores within the region. It will be noted that the direction of the difference was similar to those in the previous analyses; a high score on a key indicating maladjustment predicted increased use of small groups on the part of the experimental group. The relation between SS pretraining and post-training scores was similar to that found for VE in that a low score predicted an increase.

d. Social Structure posttraining, controlling SS and L pretraining.

As shown in Table 19, one region of significance was found,

Table 18

Johnson-Neyman Tests of Significance of Differences
Between Groups in Social Structure Controlling
Pretraining Social Structure and MMPI Pa¹
(F ratios)



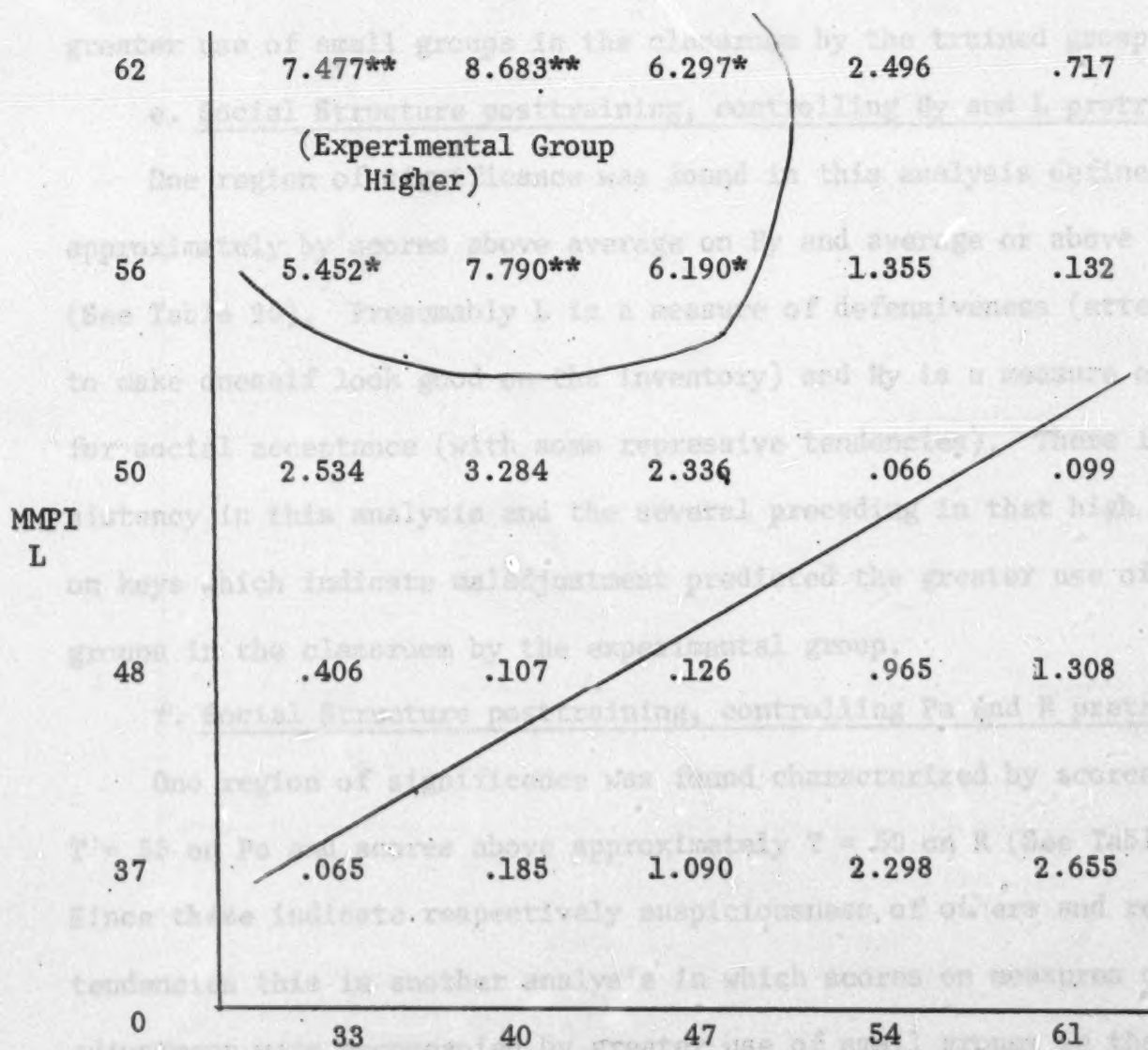
* = P.05 (4.055 for 1,45 df)

** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

Table 19

Johnson-Neyman Tests of Significance of Differences
Between Groups in Social Structure Controlling
Pretraining Social Structure and MMPI L¹
(F ratios)



Social Structure Pretraining

* = P.05 (4.055 for 1,45 df)

** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

characterized by higher than average scores on L and lower than average scores on SS pretraining. Within this region of significance the experimental group used more small groups in the classroom than the control group. Again, the trend appears in which one measure indicative of defensiveness and the other of low initial use of small groups predicted greater use of small groups in the classroom by the trained group.

e. Social Structure posttraining, controlling Hy and L pretraining.

One region of significance was found in this analysis defined approximately by scores above average on Hy and average or above on L (See Table 20). Presumably L is a measure of defensiveness (attempting to make oneself look good on the inventory) and Hy is a measure of need for social acceptance (with some repressive tendencies). There is consistency in this analysis and the several preceding in that high scores on keys which indicate maladjustment predicted the greater use of small groups in the classroom by the experimental group.

f. Social Structure posttraining, controlling Pa and R pretraining.

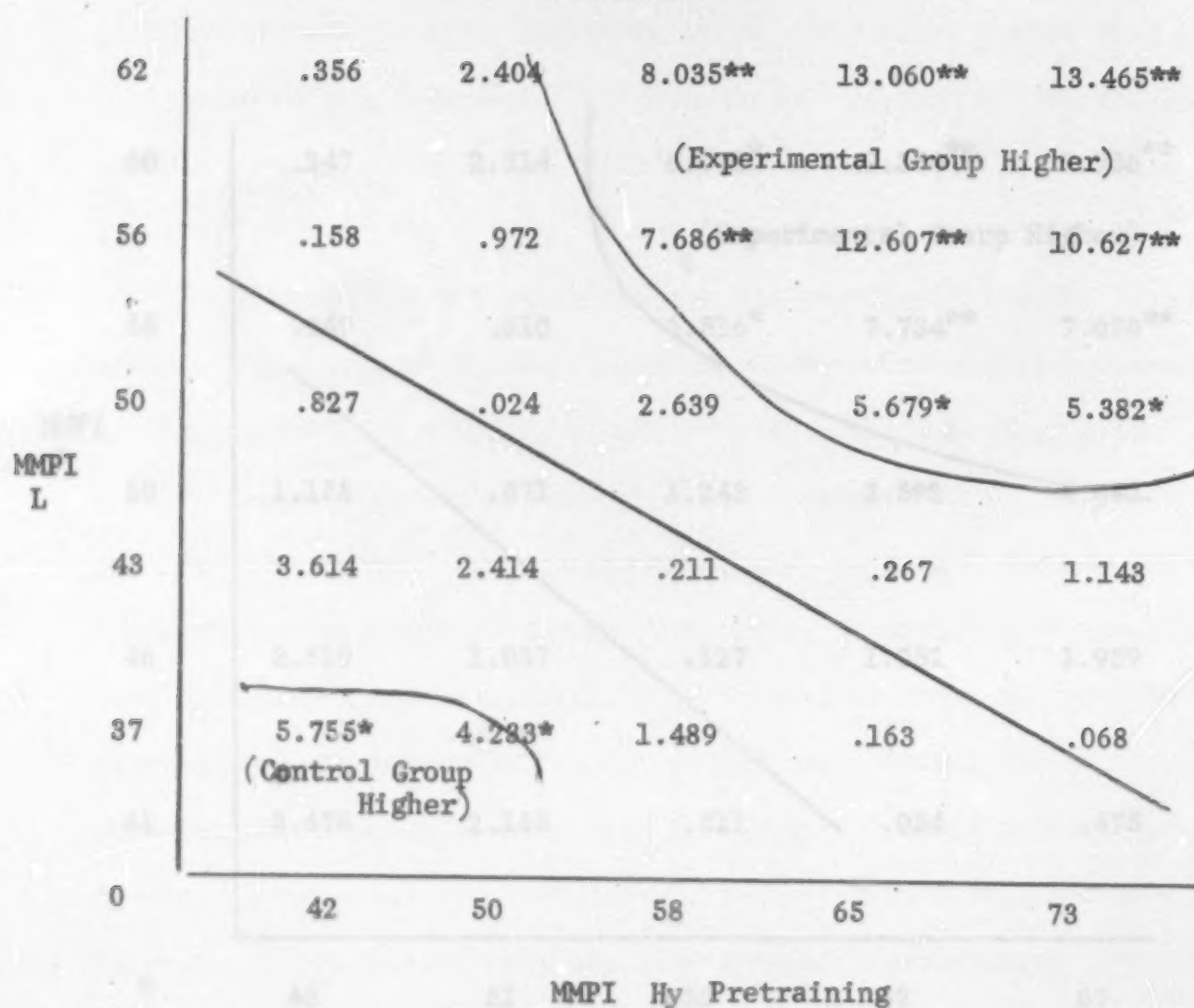
One region of significance was found characterized by scores above $T = 55$ on Pa and scores above approximately $T = 50$ on R (See Table 21). Since these indicate respectively suspiciousness of others and repressive tendencies this is another analysis in which scores on measures of maladjustment were accompanied by greater use of small groups in the classroom after the training.

g. Summary discussion of SS analyses.

The problem is one of finding resolution of the contradictions that

Table 20

Johnson-Neyman Tests of Significance of Differences
Between Groups in Social Structure
Controlling MMPI Hy and L¹
(F ratios)

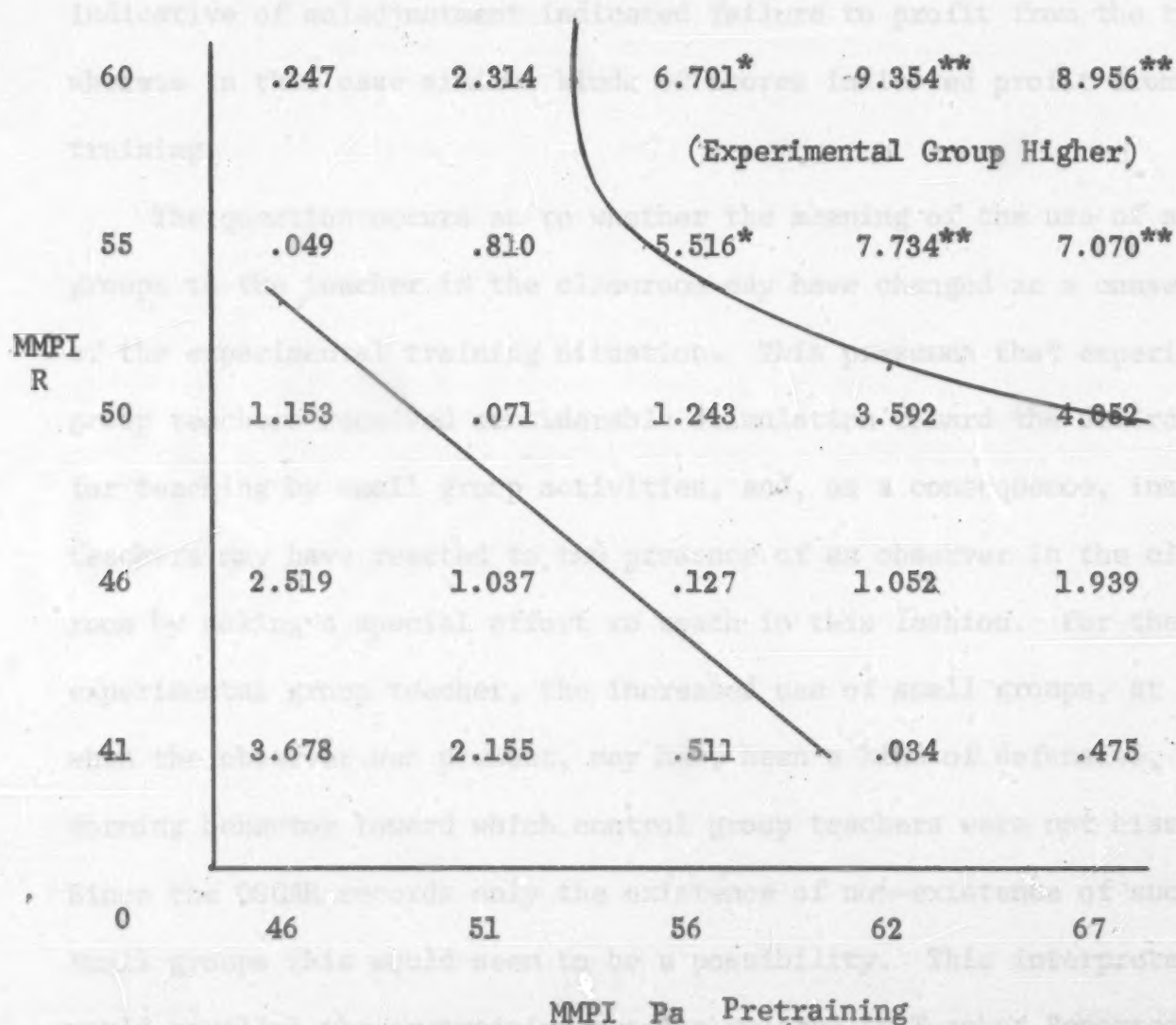


* = P.05 (4.055 for 1,45 df)
** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

Table 21

Johnson-Neyman Tests of Significance of Differences
Between Groups in Social Structure
Controlling MMPI Pa and R¹
(F ratios)



* = P.05 (4.055 for 1,45 df)

** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

have emerged. In the pretraining data the use of small groups was found to be associated with good personality adjustment, whereas in the posttraining data high scores on maladjustment keys are indicative of apparent superior performance on the part of the experimental group. In addition, on the other measures, VE in particular, pretraining scores indicative of maladjustment indicated failure to profit from the training, whereas in this case similar kinds of scores indicated profit from the training.

The question occurs as to whether the meaning of the use of small groups to the teacher in the classroom may have changed as a consequence of the experimental training situation. This presumes that experimental group teachers received considerable stimulation toward the desirability for teaching by small group activities, and, as a consequence, insecure teachers may have reacted to the presence of an observer in the classroom by making a special effort to teach in this fashion. For the experimental group teacher, the increased use of small groups, at least when the observer was present, may have been a kind of defensive, conforming behavior toward which control group teachers were not biased. Since the OSCAR records only the existence of non-existence of such small groups this would seem to be a possibility. This interpretation would parallel the pretraining results related to Teacher Reported Group Activities. For the control group, the socially and professionally desirable kind of behavior may have been seen as maintaining order whereas for the experimental group it may have been increasing use of

small group activities--at least in their perception of the values of the experimenters and the field staff. While this is speculative, it does appear to resolve what appear to be conflicting findings. On the basis of the evidence, hypothesis 12 was rejected.

Hypotheses related to Emotional Climate in the classroom

13. There is no change in Emotional Climate in the classroom of teachers after intensive laboratory training in human relations.

As Table 13 indicates, the t test of this hypothesis did not reach significance. No mean change in emotional climate was shown as a consequence of the training experience. Hypothesis 13 was accepted.

14. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to Emotional Climate in the classroom.

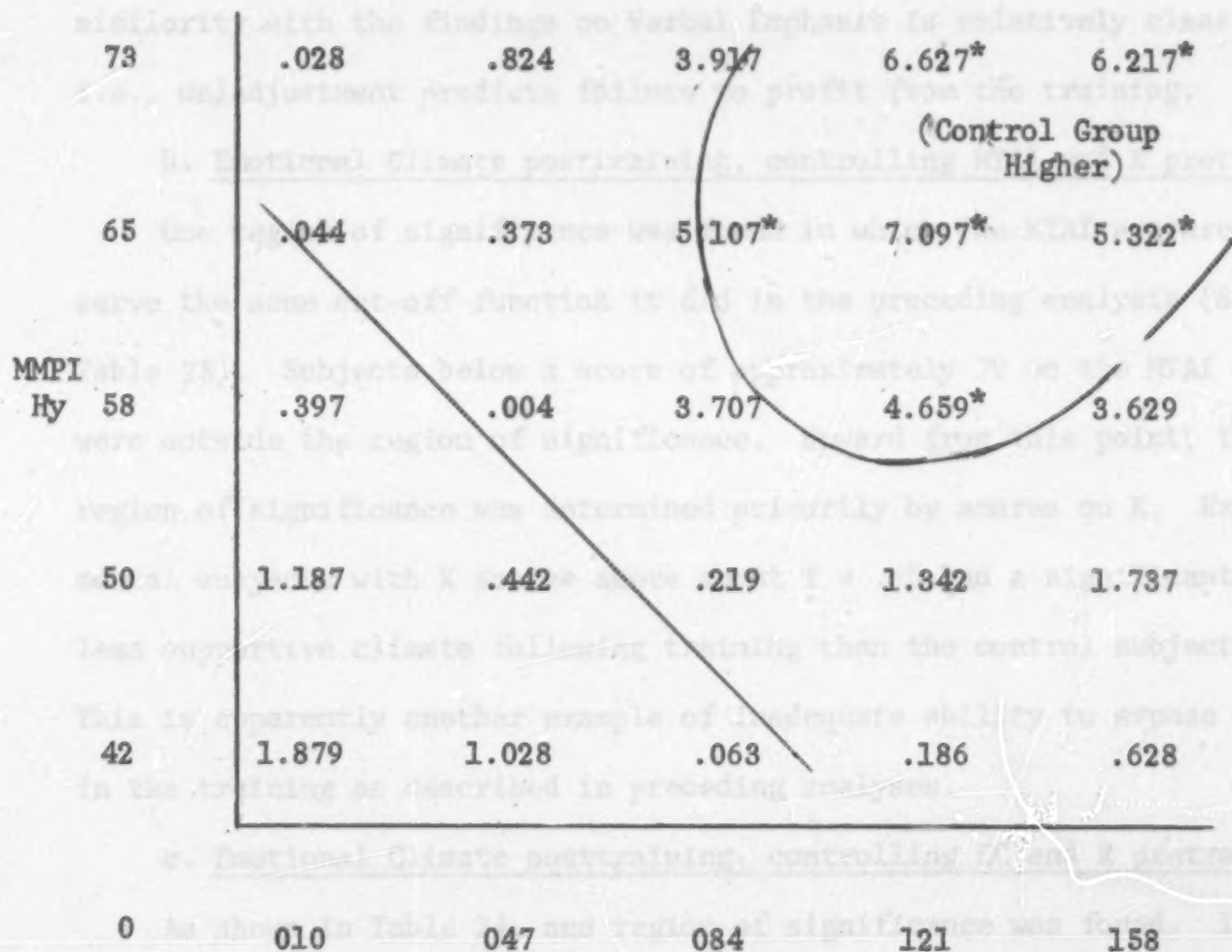
a. Emotional Climate posttraining, controlling MTAI and Hy pretraining.

As shown in Table 22, one region of significance was found characterized by scores ranging from approximately 75² upward on the MTAI and by scores above approximately 55 on Hy. The MTAI seemed to function chiefly in determining a kind of cut-off point (approximately between scores of 70 and 75) below which scores on Hy did not appear to influence the region of significance. Above that point, however, the MTAI made

2. A constant of 50 was added to all MTAI raw scores to eliminate negative values.

Table 22

Johnson-Neyman Tests of Significance of Differences
Between Groups in Emotional Climate Controlling
Minnesota Teacher Attitude Inventory and MMPI Hy¹
(F ratios)



Minnesota Teacher Attitude Inventory Pretraining

* = P.05 (4.055 for 1,45 df)

** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

relatively little difference, and the boundary of the region of significance seemed to be established chiefly by scores on Hy. By this interpretation, subjects with relatively strong needs for social acceptance by others (and a tendency to satisfy them by repressive means) did not appear to profit from the training experience. The similarity with the findings on Verbal Emphasis is relatively clear, i.e., maladjustment predicts failure to profit from the training.

b. Emotional Climate posttraining, controlling MTAI and K pretraining.

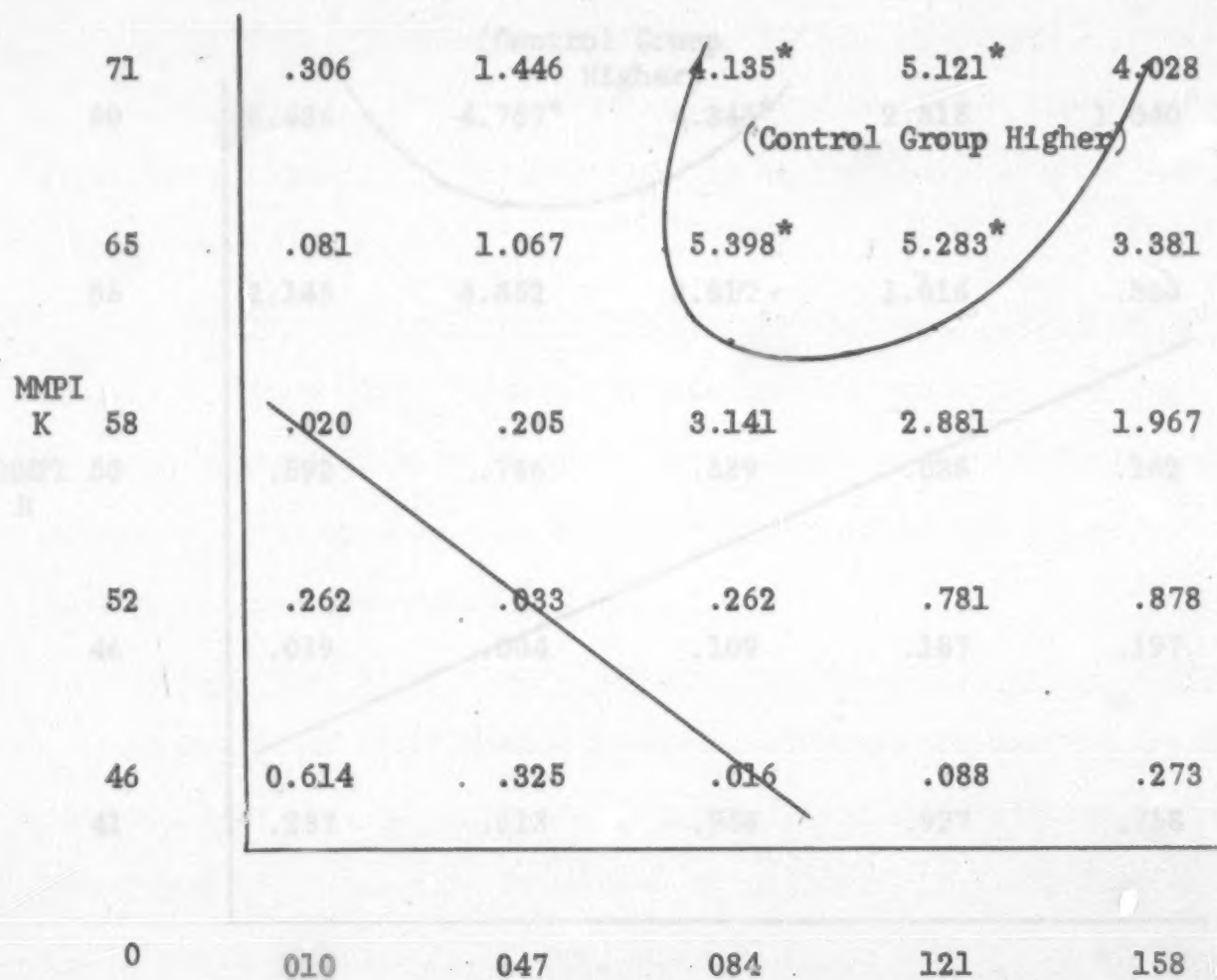
One region of significance was found in which the MTAI appeared to serve the same cut-off function it did in the preceding analysis (See Table 23). Subjects below a score of approximately 72 on the MTAI all were outside the region of significance. Upward from this point, the region of significance was determined primarily by scores on K. Experimental subjects with K scores above about $T = .65$ had a significantly less supportive climate following training than the control subjects. This is apparently another example of inadequate ability to expose oneself in the training as described in preceding analyses.

c. Emotional Climate posttraining, controlling EC and R pretraining.

As shown in Table 24, one region of significance was found. Its limits were somewhat more difficult to identify than some other analyses because only a relatively small portion of it fell within the points studied in the analysis. One edge of the region was limited by scores on R of about $T = 58$ and the portion of the curve shown lay between T scores of 48 and 60, approximately, on EC pretraining. This appears to

Table 23

Johnson-Neyman Tests of Significance of Differences
Between Groups in Emotional Climate Controlling
Minnesota Teacher Attitude Inventory and MMPI K1
(F ratios)



Minnesota Teacher Attitude Inventory Pretraining

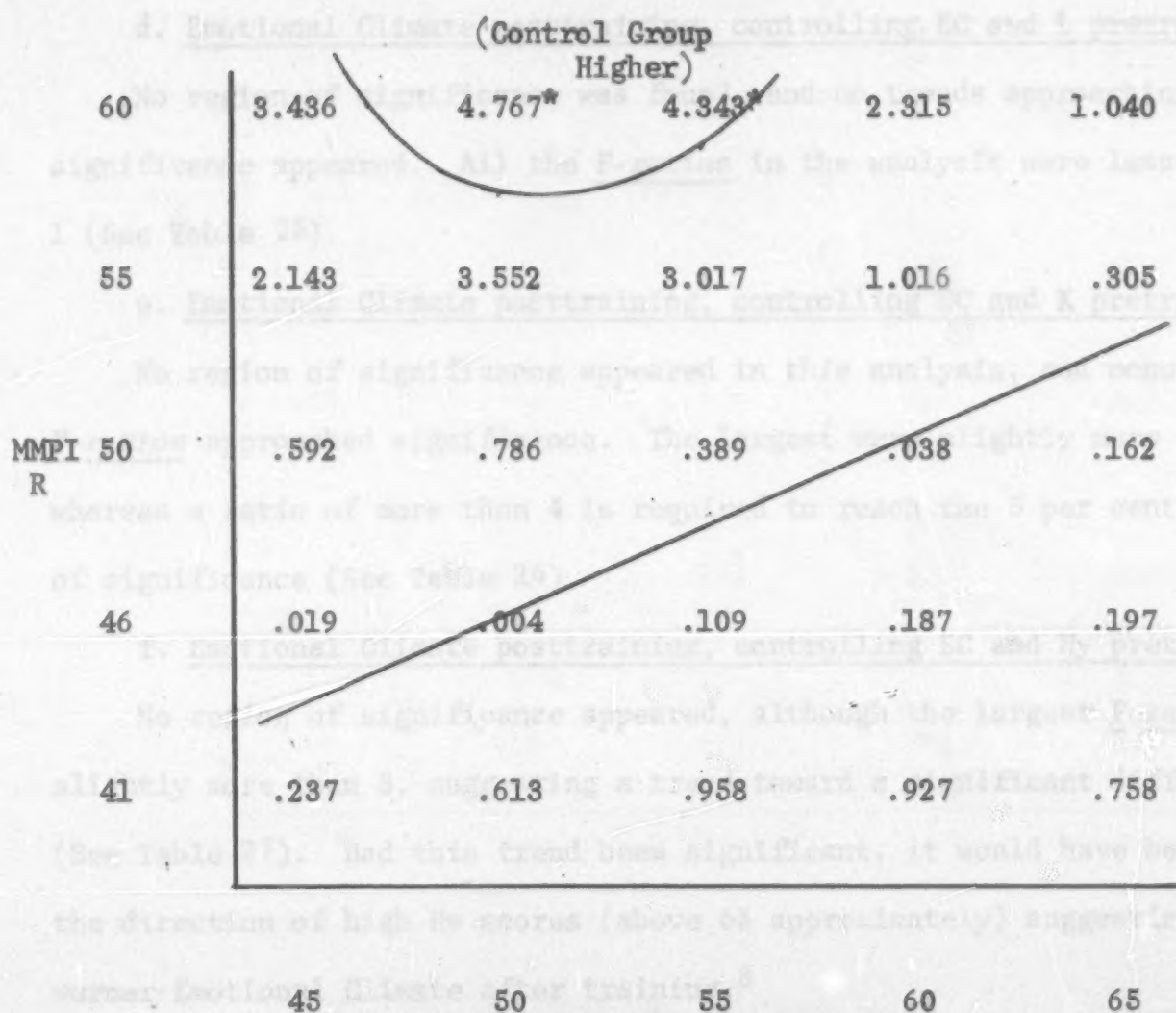
* = P.05 (4.055 for 1,45 df)

** = P.01 (7.225 for 1,45 df)

1 Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

Table 24

Johnson-Neyman Tests of Significance of Differences
Between Groups in Emotional Climate Controlling
Pretraining Emotional Climate and MMPI R¹
(F ratios)



* = P.05 (4.055 for 1,45 df)

** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

be another finding similar to several reported earlier, where high scores on R are indicative of inability to profit from the training. The direction of the difference within the region of significance was again one in which the control group had an Emotional Climate warmer than the experimental group.

d. Emotional Climate posttraining, controlling EC and L pretraining.

No region of significance was found, and no trends approaching significance appeared. All the F-ratios in the analysis were less than 1 (See Table 25).

e. Emotional Climate posttraining, controlling EC and K pretraining.

No region of significance appeared in this analysis, and none of the F-ratios approached significance. The largest were slightly more than 1 whereas a ratio of more than 4 is required to reach the 5 per cent level of significance (See Table 26).

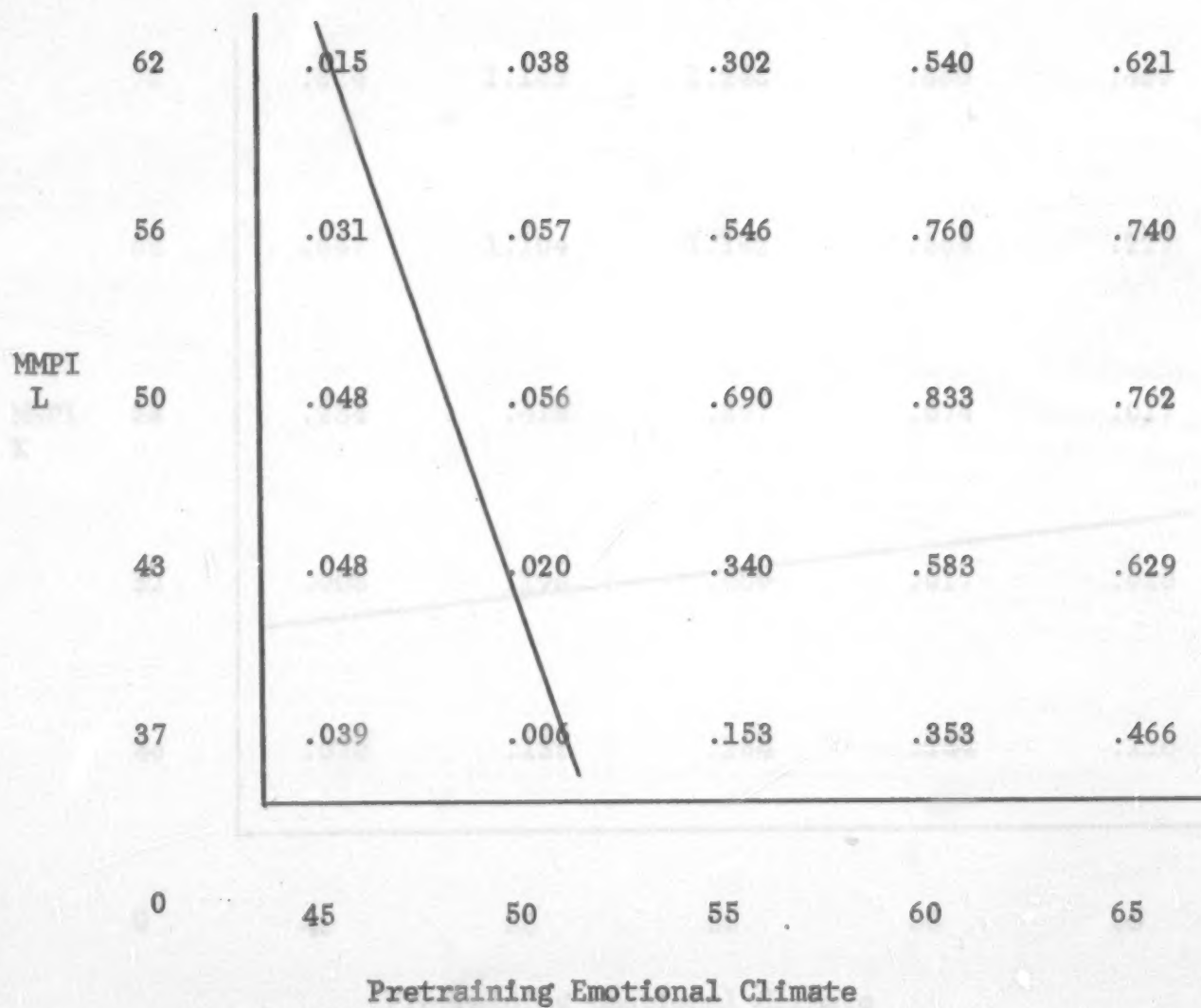
f. Emotional Climate posttraining, controlling EC and Hy pretraining.

No region of significance appeared, although the largest F-ratio was slightly more than 3, suggesting a trend toward a significant difference (See Table 27). Had this trend been significant, it would have been in the direction of high Hy scores (above 65 approximately) suggesting warmer Emotional Climate after training.³

3. As indicated in Chapter 3, the computer program permitted tests of points ranging only ± 1 SD from the mean. If this range were extended, it is entirely possible that significant differences might be found.

Table 25

Johnson-Neyman Tests of Significance of Differences
Between Groups in Emotional Climate Controlling
Pretraining Emotional Climate and MMPI L¹
(F ratios)

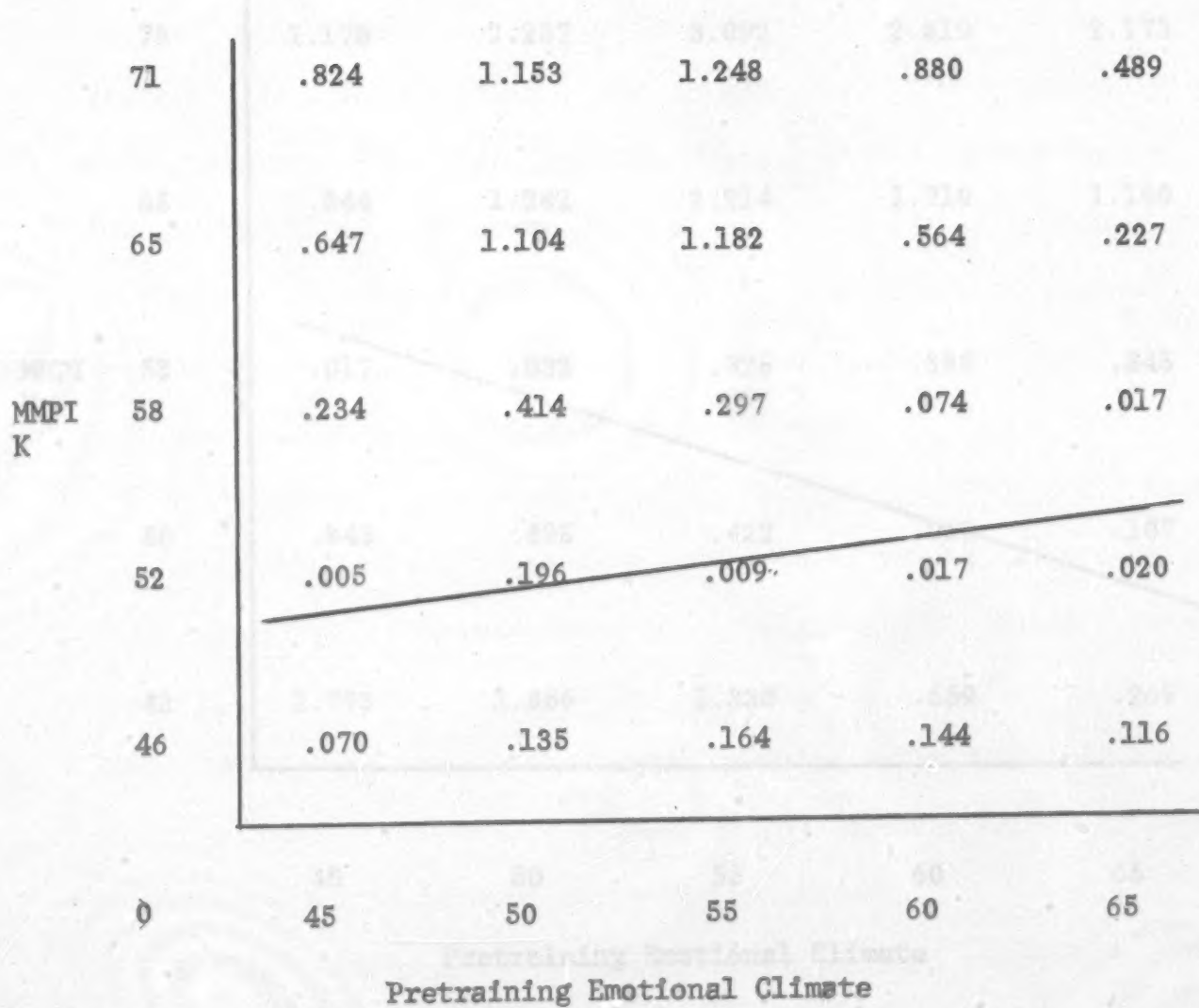


* = P.05 (4.055 for 1,45 df)
** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

Table 26

Johnson-Neyman Tests of Significance of Differences
Between Groups in Emotional Climate Controlling
Pretraining Emotional Climate and MMPI K¹
(F ratios)



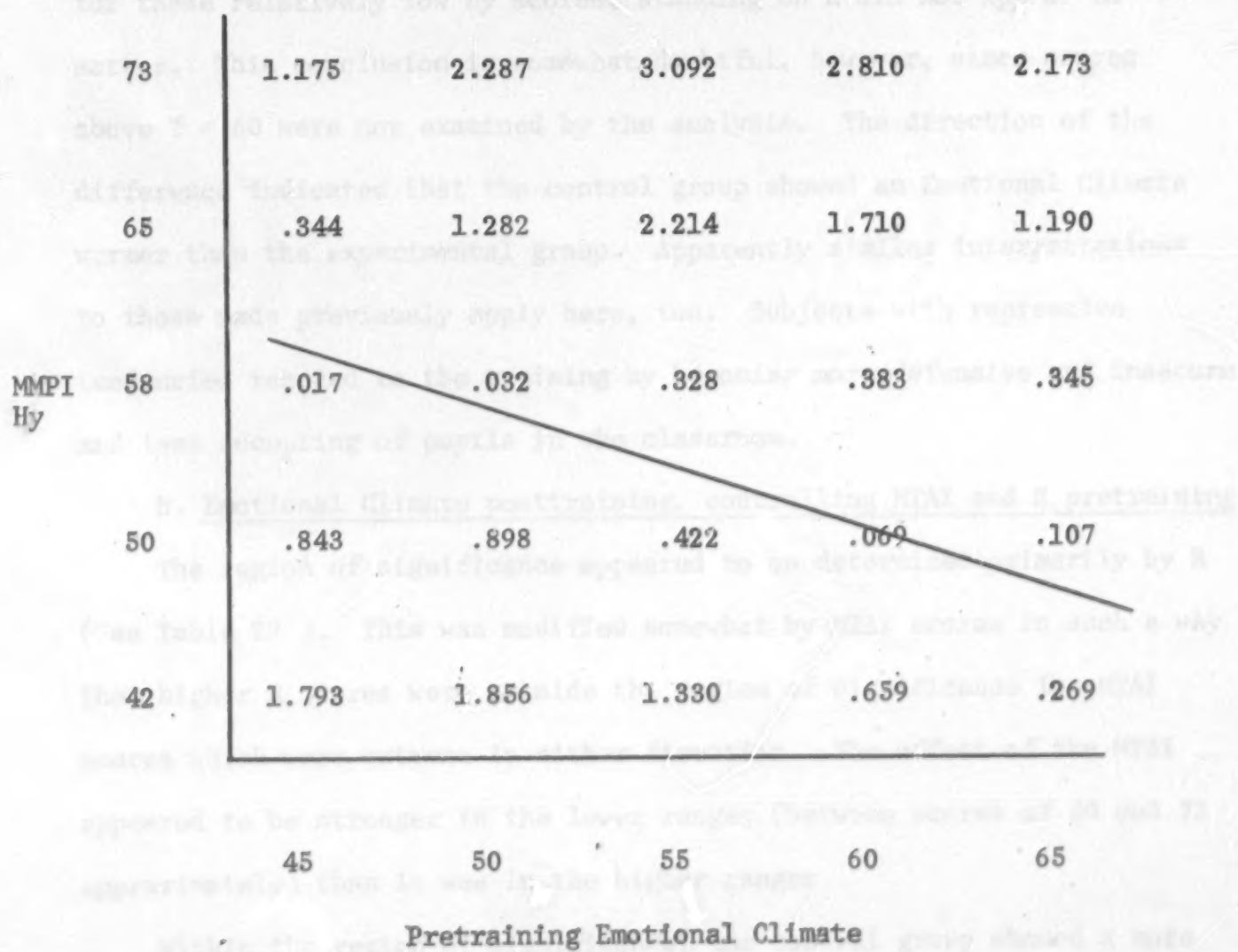
* = P.05 (4.055 for 1,45 df)

** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

Table 27

Johnson-Neyman Tests of Significance of Differences
Between Groups in Emotional Climate Controlling
Pretraining Emotional Climate and MMPI Hy¹
(F ratios)



* = P.05 (4.055 for 1,45 df)

** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

g. Emotional Climate posttraining, controlling Hy and R pretraining.

As shown in Table 28, a region of significance was found which was characterized chiefly by T scores on R above about 52. Scores on Hy (below $T = 50$) determined the boundaries of the region of significance; for these relatively low Hy scores, standing on R did not appear to matter. This conclusion is somewhat doubtful, however, since scores above $T = 60$ were not examined by the analysis. The direction of the difference indicated that the control group showed an Emotional Climate warmer than the experimental group. Apparently similar interpretations to those made previously apply here, too. Subjects with repressive tendencies reacted to the training by becoming more defensive and insecure and less accepting of pupils in the classroom.

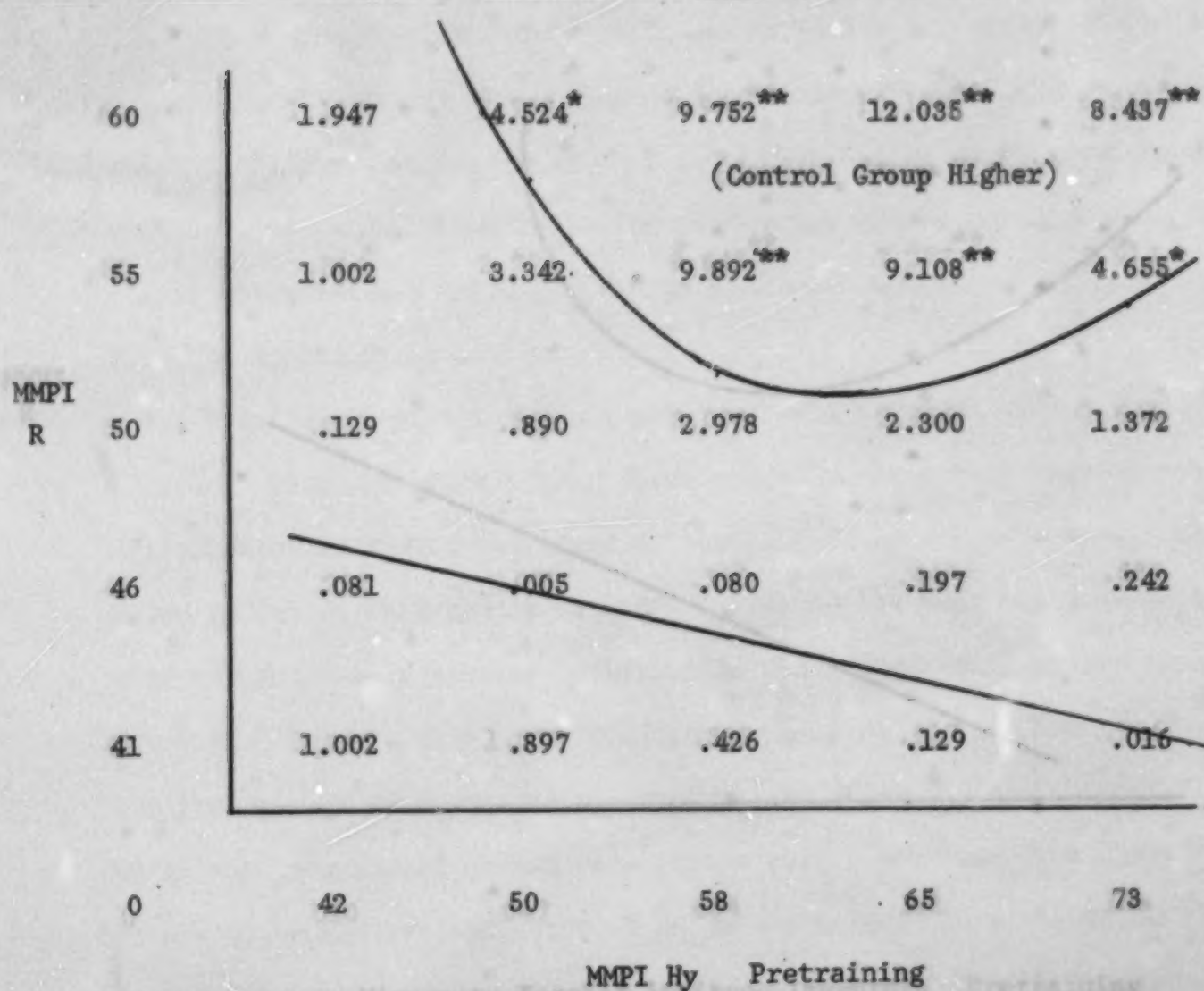
h. Emotional Climate posttraining, controlling MTAI and R pretraining.

The region of significance appeared to be determined primarily by R (See Table 29). This was modified somewhat by MTAI scores in such a way that higher R scores were outside the region of significance for MTAI scores which were extreme in either direction. The effect of the MTAI appeared to be stronger in the lower ranges (between scores of 40 and 72 approximately) than it was in the higher ranges.

Within the region of significance, the control group showed a more supportive climate than the experimental group. This appeared to be another result similar to those found earlier in which high R scores predicted lack of profit from the training experience.

Table 28

Johnson-Neyman Tests of Significance of Differences
Between Groups in Emotional Climate
Controlling MMPI Hy and R¹
(F ratios)



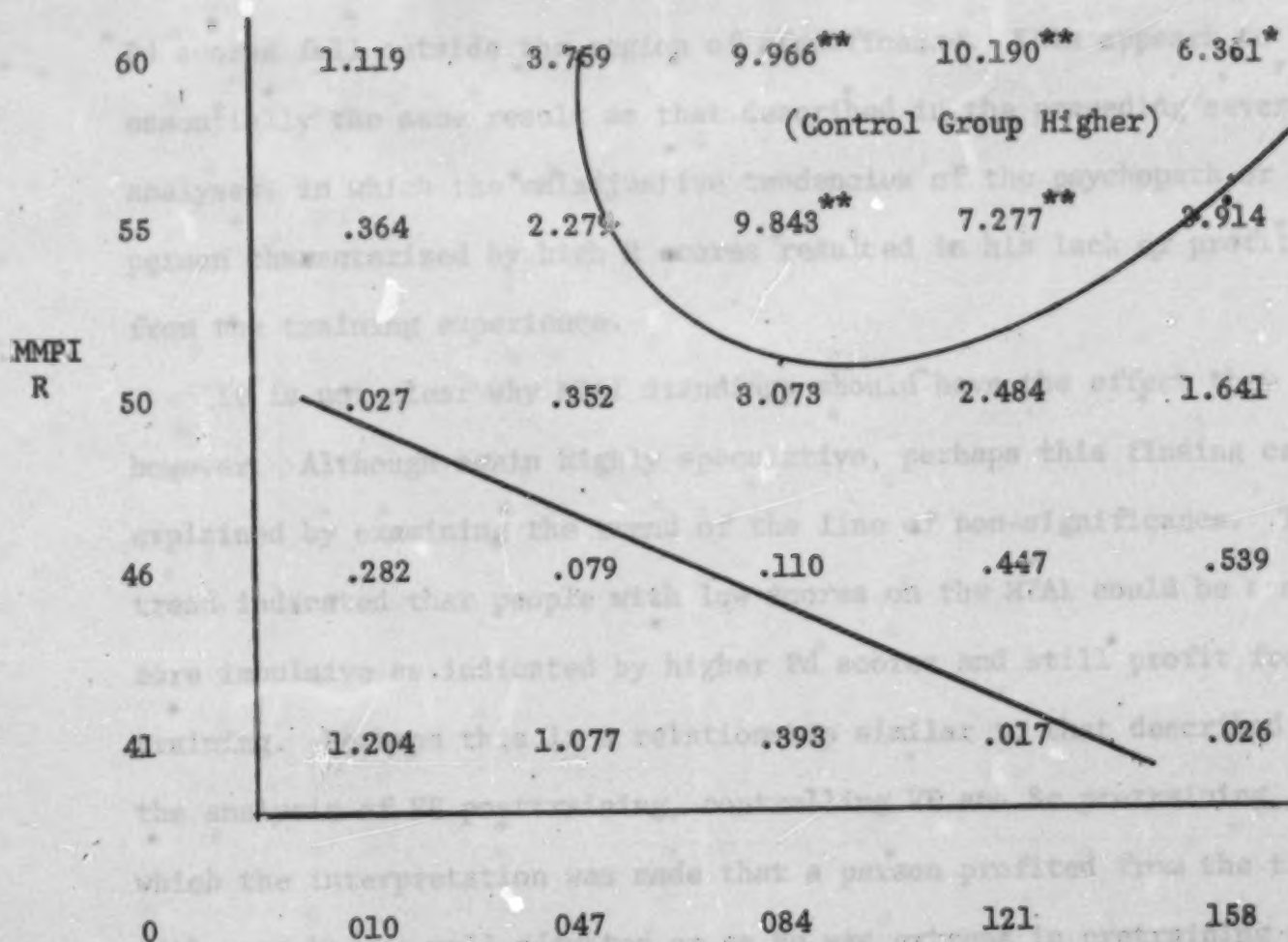
* = P.05 (4.055 for 1,45 df)

** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

Table 29

**Johnson-Neyman Tests of Significance of Differences
Between Groups in Emotional Climate Controlling
Minnesota Teacher Attitude Inventory and MMPI R1
(F ratios)**



Minnesota Teacher Attitude Inventory Pretraining

* = P.05 (4.055 for 1, 45 df)

** = P.01 (7.225 for 1, 45 df)

1 Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

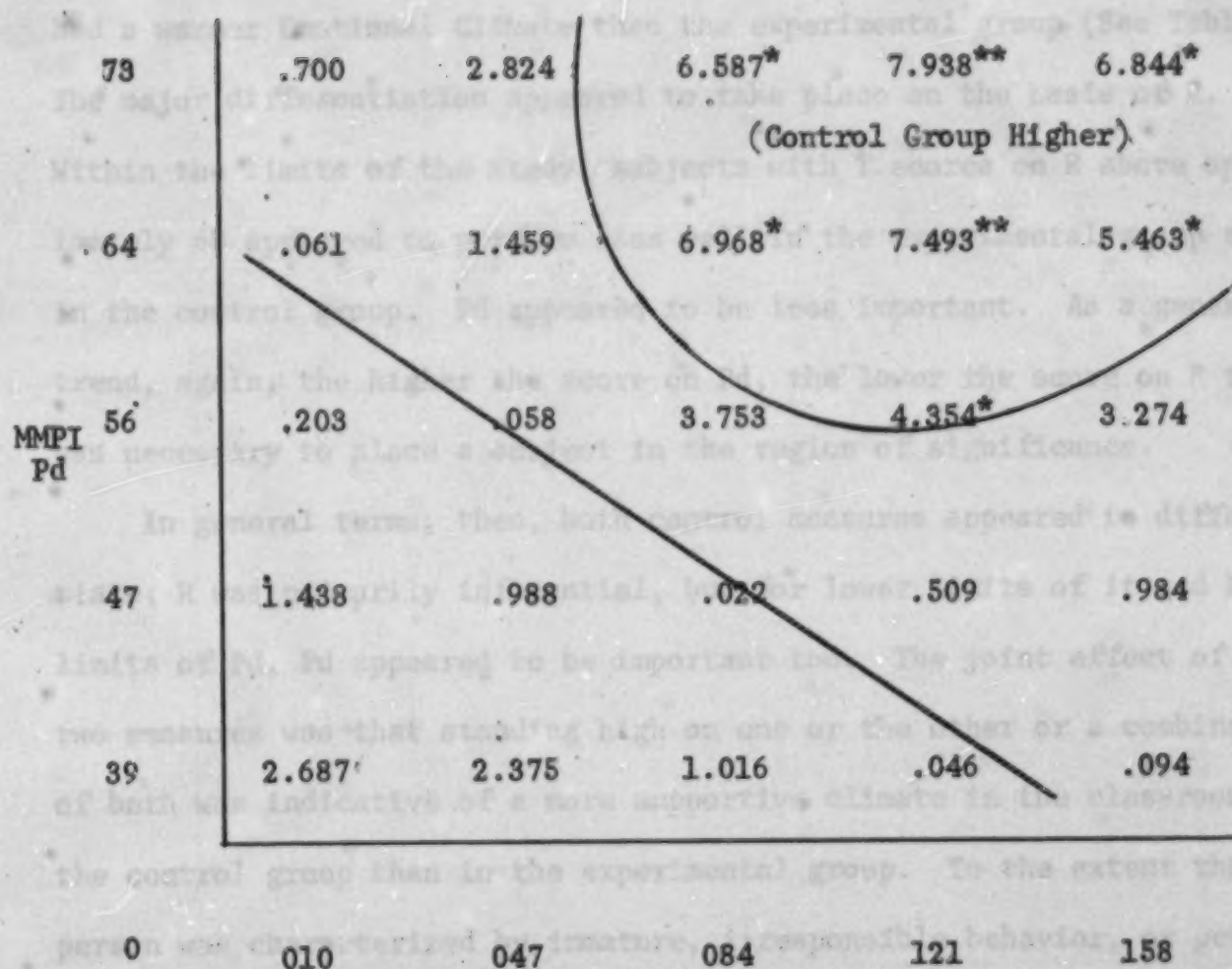
1. Emotional Climate posttraining, controlling MTAI and Pd pretraining.

As shown in Table 30, one region of significance was found, characterized by superior performance on the part of the control group. Pd appeared to be a somewhat more important determiner of this region than the MTAI, although with extreme MTAI scores (below 85, above 130) higher Pd scores fell outside the region of significance. This appears to be essentially the same result as that described in the preceding several analyses, in which the maladjustive tendencies of the psychopath or the person characterized by high R scores resulted in his lack of profit from the training experience.

It is not clear why MTAI standings should have the effect they do, however. Although again highly speculative, perhaps this finding can be explained by examining the trend of the line of non-significance. The trend indicated that people with low scores on the MTAI could be somewhat more impulsive as indicated by higher Pd scores and still profit from the training. Perhaps this is a relationship similar to that described in the analysis of VE posttraining, controlling VE and Sc pretraining, in which the interpretation was made that a person profited from the training either as he was well-adjusted or as he was extreme in pretraining classroom performance. Presumably, pressure will be felt by the teacher who discovers himself to be extreme in attitudes or classroom procedures, as compared with his peers or generally accepted standards of classroom practice. This pressure will undoubtedly result in a felt need for personal change.

Table 30

Johnson-Neyman Tests of Significance of Differences
Between Groups in Emotional Climate Controlling
Minnesota Teacher Attitude Inventory and MMPI Pd¹
(F ratios)



Minnesota Teacher Attitude Inventory Pretraining

* = P.05 (4.055 for 1,45 df)

** = P.01 (7.225 for 1,45 df)

1 Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

In this case, the interpretation would be that a person may be somewhat more repressive and still profit from the training. That is, a person changes as he has the resources and as he feels the need.

j. Emotional Climate posttraining, controlling Pd and R pretraining.

One region of significance was found within which the control group had a warmer Emotional Climate than the experimental group (See Table 31). The major differentiation appeared to take place on the basis of R. Within the limits of the study, subjects with T scores on R above approximately 60 appeared to perform less well in the experimental group than in the control group. Pd appeared to be less important. As a general trend, again, the higher the score on Pd, the lower the score on R that was necessary to place a subject in the region of significance.

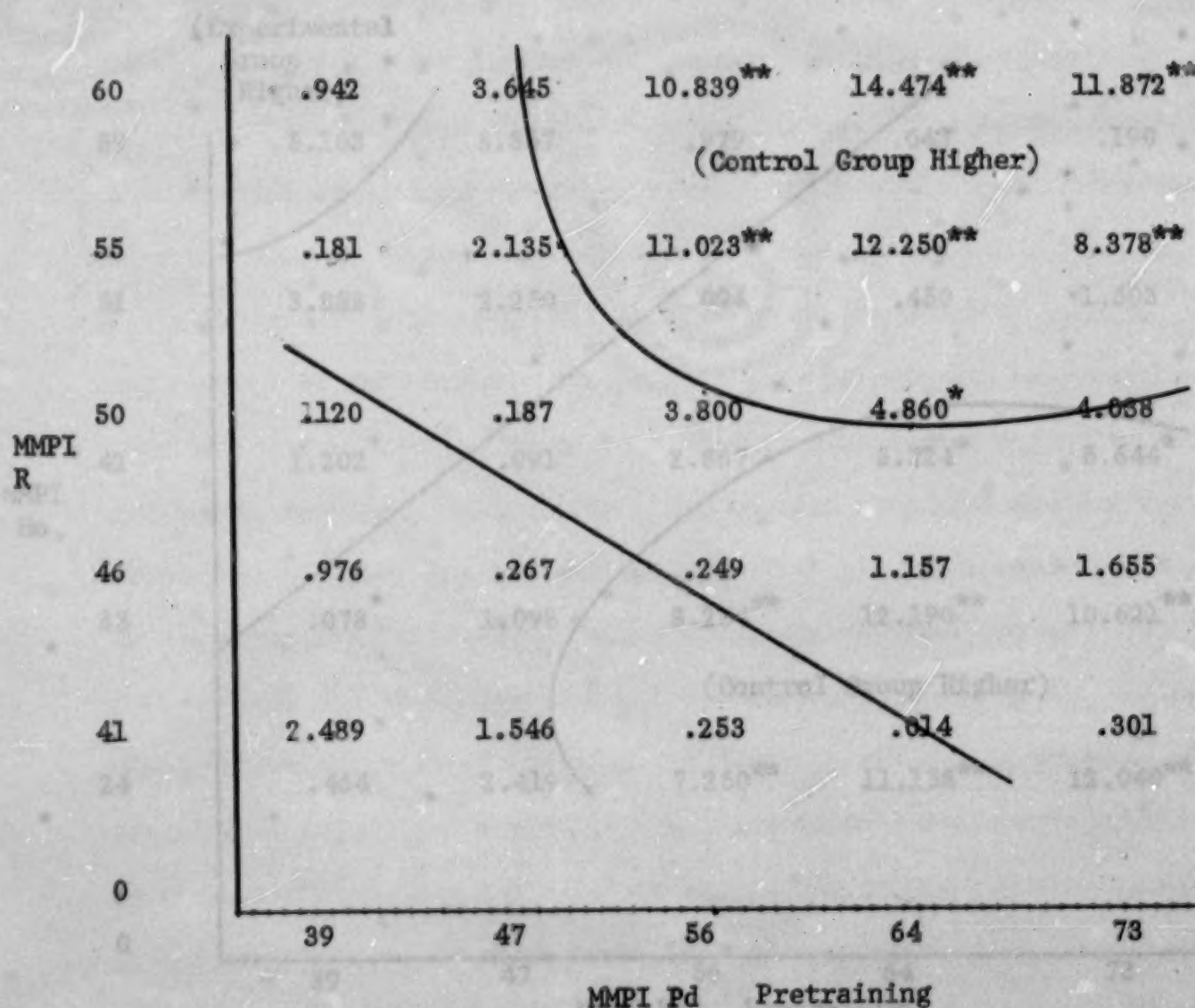
In general terms, then, both control measures appeared to differentiate; R was primarily influential, but for lower limits of it and higher limits of Pd, Pd appeared to be important too. The joint effect of the two measures was that standing high on one or the other or a combination of both was indicative of a more supportive climate in the classrooms of the control group than in the experimental group. To the extent that a person was characterized by immature, irresponsible behavior, or perceived himself and his relationships to his surroundings inaccurately, he was not likely to profit from the training experience.

k. Emotional Climate posttraining, controlling Pd and Ho pretraining.

A region of significance was found which was characterized by low scores on Ho (all below a T score of 50) and high scores on Pd (55 and above) (See Table 32). The direction of the difference within the

Table 31

Johnson-Neyman Tests of Significance of Differences
Between Groups in Emotional Climate
Controlling MMPI Pd and R¹
(F ratios)



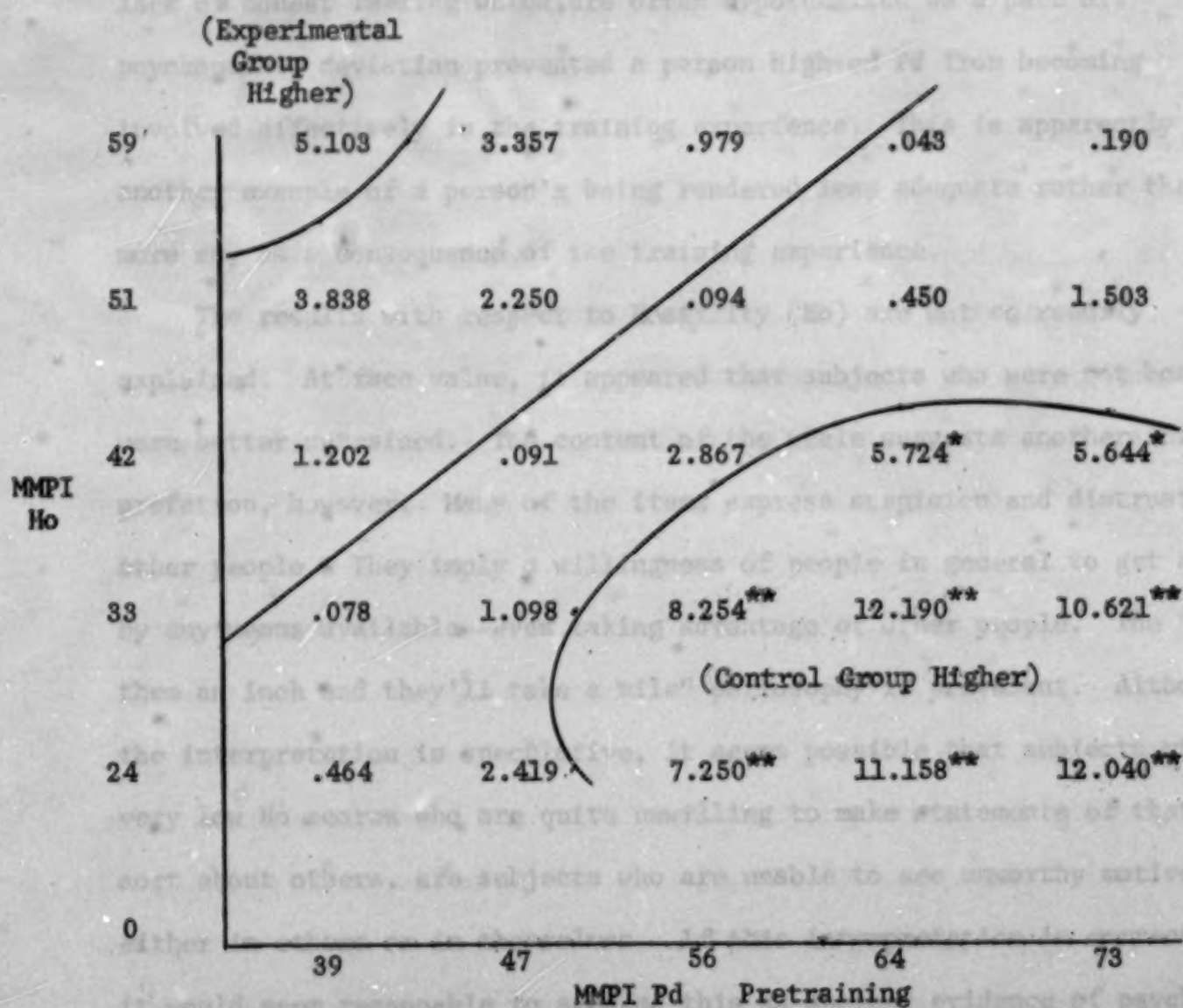
* = P.05 (4.055 for 1,45 df)

** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

Table 32

Johnson-Neyman Tests of Significance of Differences
Between Groups in Emotional Climate
Controlling MMPI Pd and Ho¹
(F ratios)



* = P.05 (4.055 for 1,45 df)

** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

region of significance was toward warmer Emotional Climate in the control group than in the experimental group.

Interpretations similar to those preceding seem appropriate. It seems reasonable that the impulsive, irresponsible elements and the lack of honest feeling which are often hypothesized as a part of psychopathic deviation prevented a person high on Pd from becoming involved effectively in the training experience. This is apparently another example of a person's being rendered less adequate rather than more so, as a consequence of the training experience.

The results with respect to Hostility (Ho) are not so readily explained. At face value, it appeared that subjects who were not hostile were better untrained. The content of the scale suggests another interpretation, however. Many of the items express suspicion and distrust of other people. They imply a willingness of people in general to get ahead by any means available--even taking advantage of other people. The "give them an inch and they'll take a mile" philosophy is prevalent. Although the interpretation is speculative, it seems possible that subjects with very low Ho scores who are quite unwilling to make statements of that sort about others, are subjects who are unable to see unworthy motives either in others or in themselves. If this interpretation is correct, it would seem reasonable to subsume this as another evidence of psychological screening or repressive tendencies. This hypothesis gains support from the fact that most of the subjects in the region of significance fell below standard scores of approximately 35 or 40. The question arises whether teachers as a group may be characterized by repressive, conforming

patterns of reaction to a greater degree than other groups, or alternatively, whether the sample of subjects who volunteered for this project may be so characterized.

1. Emotional Climate posttraining, controlling EC and Pa pretraining.

No region of significance appeared, but the trend was in the direction of control subjects standing higher than experimental in the region of high Pa and low EC pretraining.

2. Emotional Climate posttraining, controlling Pa and L pretraining.

Table 34 shows a region of significance which appears to be particularly related to high scores on Pa. Scores on L appeared to have little if any relationship to posttraining performance. The major trend was in the direction of subjects with high scores on Pa having a less warm, accepting, and permissive classroom climate as a consequence of the training. This seems to be another example of subjects with limited personal resources doing less well after the training.

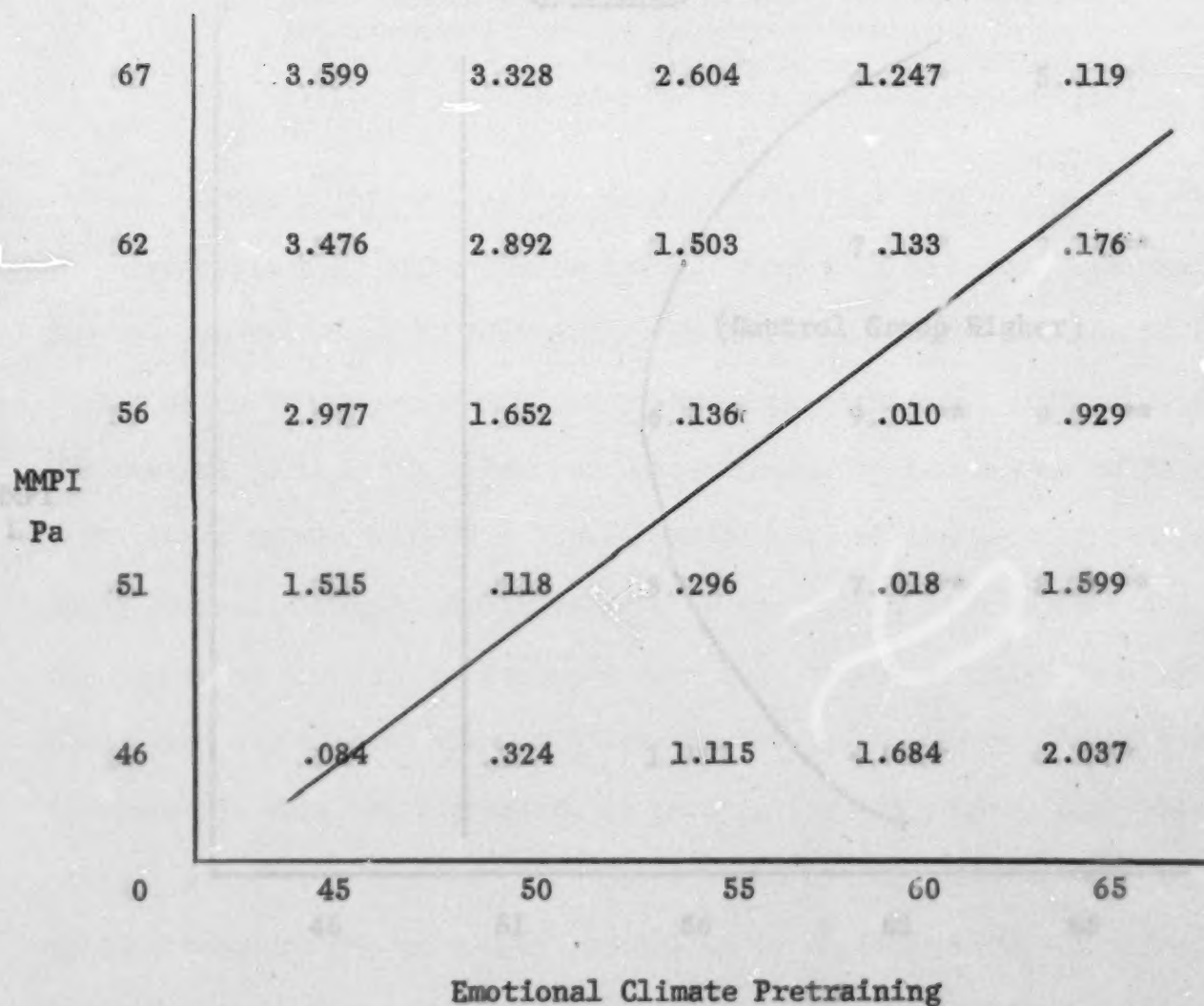
The general pattern that emerged was consistent within the analysis for Emotional Climate and consistent with other analyses. The teachers who profited from the training were those who had the personality resources to expose themselves and accept feedback. Those who did not have the strengths necessary for self-examination presumably reacted by increased defensiveness and rigidity during the training, and returned to the classroom demonstrably less supportive. On the basis of these various analyses, hypothesis 14 was rejected.

Hypotheses related to group problem solving skills of pupils (RSSR)

15. There is no change in the group problem solving skills of pupils of teachers after intensive laboratory training in human relations.

Table 33

Johnson-Neyman Tests of Significance of Differences
Between Groups in Emotional Climate Controlling
Pretraining Emotional Climate and MMPI Pa¹
(F ratios)

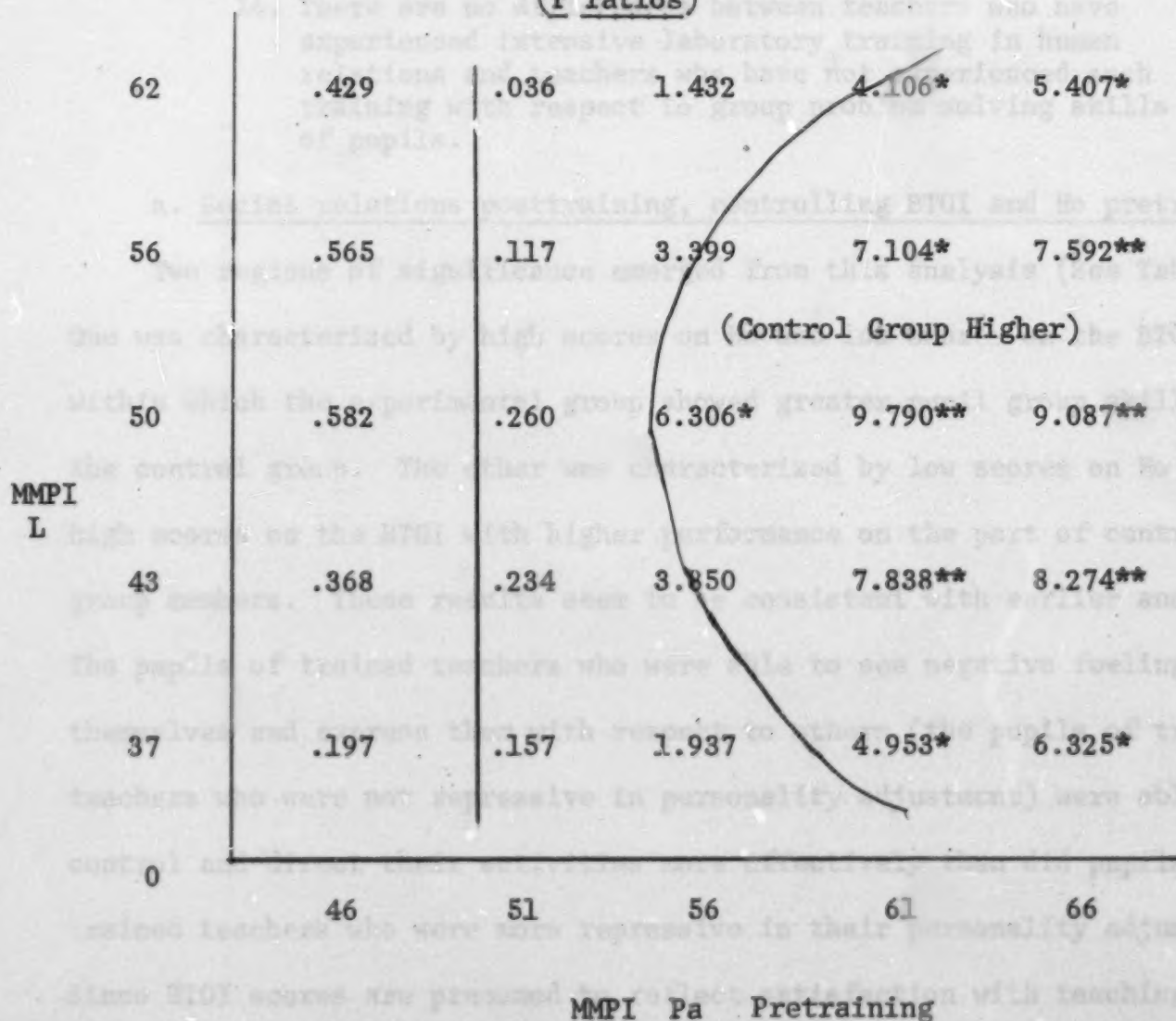


* = P.05 (4.055 for 1,45 df)
** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

Table 34

Johnson-Neyman Tests of Significance of Differences
Between Groups in Emotional Climate
Controlling MMPI Pa and L¹
(F ratios)



* = P.05 (4.055 for 1,45 df)

** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

As Table 13 indicates, the t test of this hypothesis did not approach significance. No mean change in pupil group problem solving skills as measured by the RSSR was shown as a consequence of the training experience for the teacher. Hypothesis 15 was accepted.

16. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to group problem solving skills of pupils.

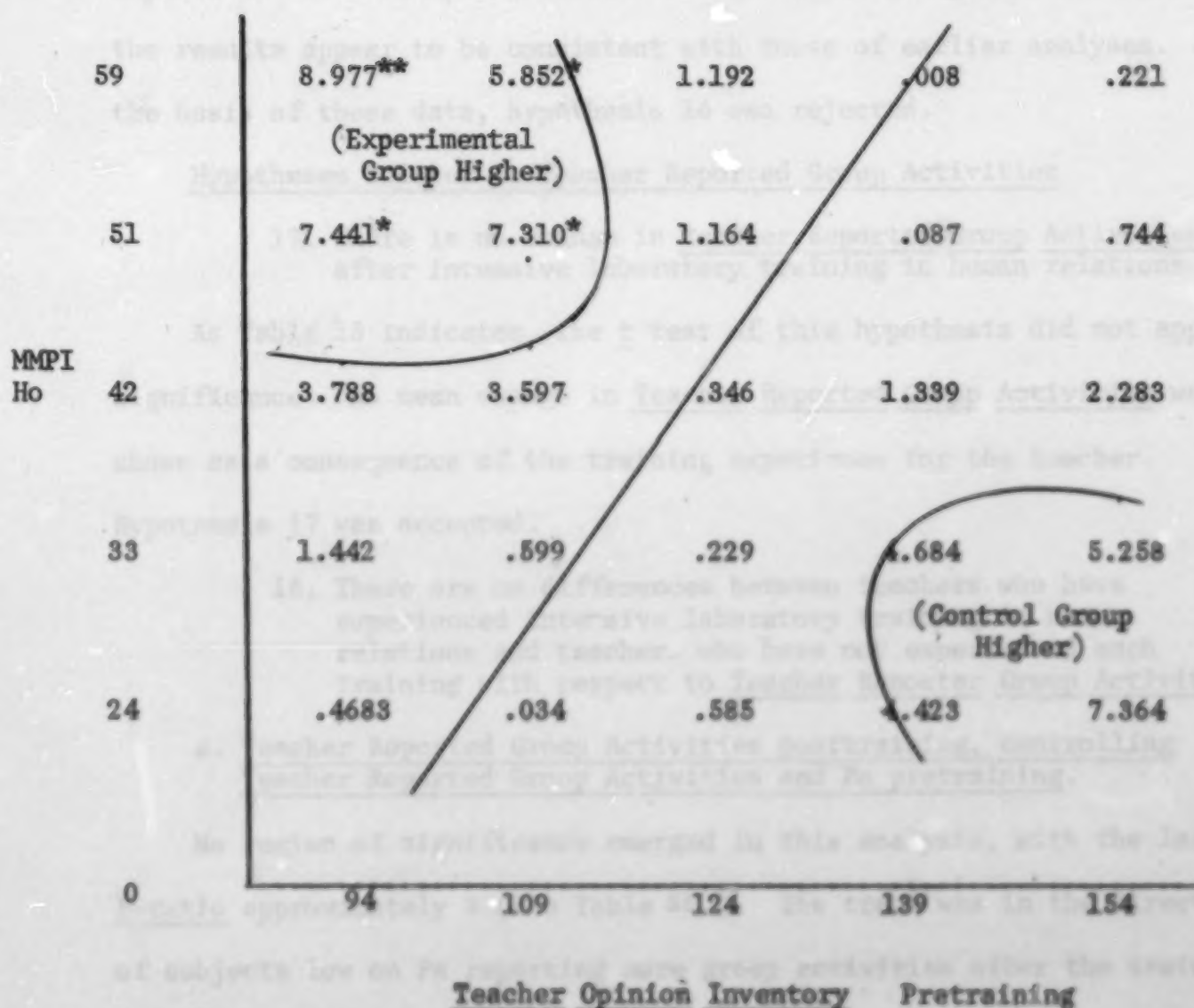
a. Social relations posttraining, controlling BTOI and Ho pretraining.

Two regions of significance emerged from this analysis (See Table 35). One was characterized by high scores on Ho and low scores on the BTOI within which the experimental group showed greater pupil group skills than the control group. The other was characterized by low scores on Ho and high scores on the BTOI with higher performance on the part of control group members. These results seem to be consistent with earlier analyses. The pupils of trained teachers who were able to see negative feelings in themselves and express them with respect to others (the pupils of trained teachers who were not repressive in personality adjustment) were able to control and direct their activities more effectively than did pupils of trained teachers who were more repressive in their personality adjustment. Since BTOI scores are presumed to reflect satisfaction with teaching as a profession, it was the pupils of teachers who were dissatisfied with teaching but who remained in it who showed greater group skill.

This is apparently another example of the increased effectiveness of teachers after training who, on the one hand have the appropriate personality resources, and on the other, felt the need for change. Opposite kinds of statements are appropriate for the region of significance where

Table 35

Johnson-Neyman Tests of Significance of Differences Between
Groups in the Social Relations Test Controlling
Teacher Opinion Inventory and MMPI Ho¹
(F ratios)



* = P.05 (4.055 for 1,45 df)

** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

the performance of pupils of control group teachers was higher. Teachers within this region were apparently characterized by repressive personality tendencies and with satisfaction with things as they were, and superior performance was found among the pupils of teachers who had not been exposed to the "disrupting forces" of the training experience. Again, the results appear to be consistent with those of earlier analyses. On the basis of these data, hypothesis 16 was rejected.

Hypotheses related to Teacher Reported Group Activities

17. There is no change in Teacher Reported Group Activities after intensive laboratory training in human relations.

As Table 13 indicates, the t test of this hypothesis did not approach significance. No mean change in Teacher Reported Group Activities was shown as a consequence of the training experience for the teacher.

Hypothesis 17 was accepted.

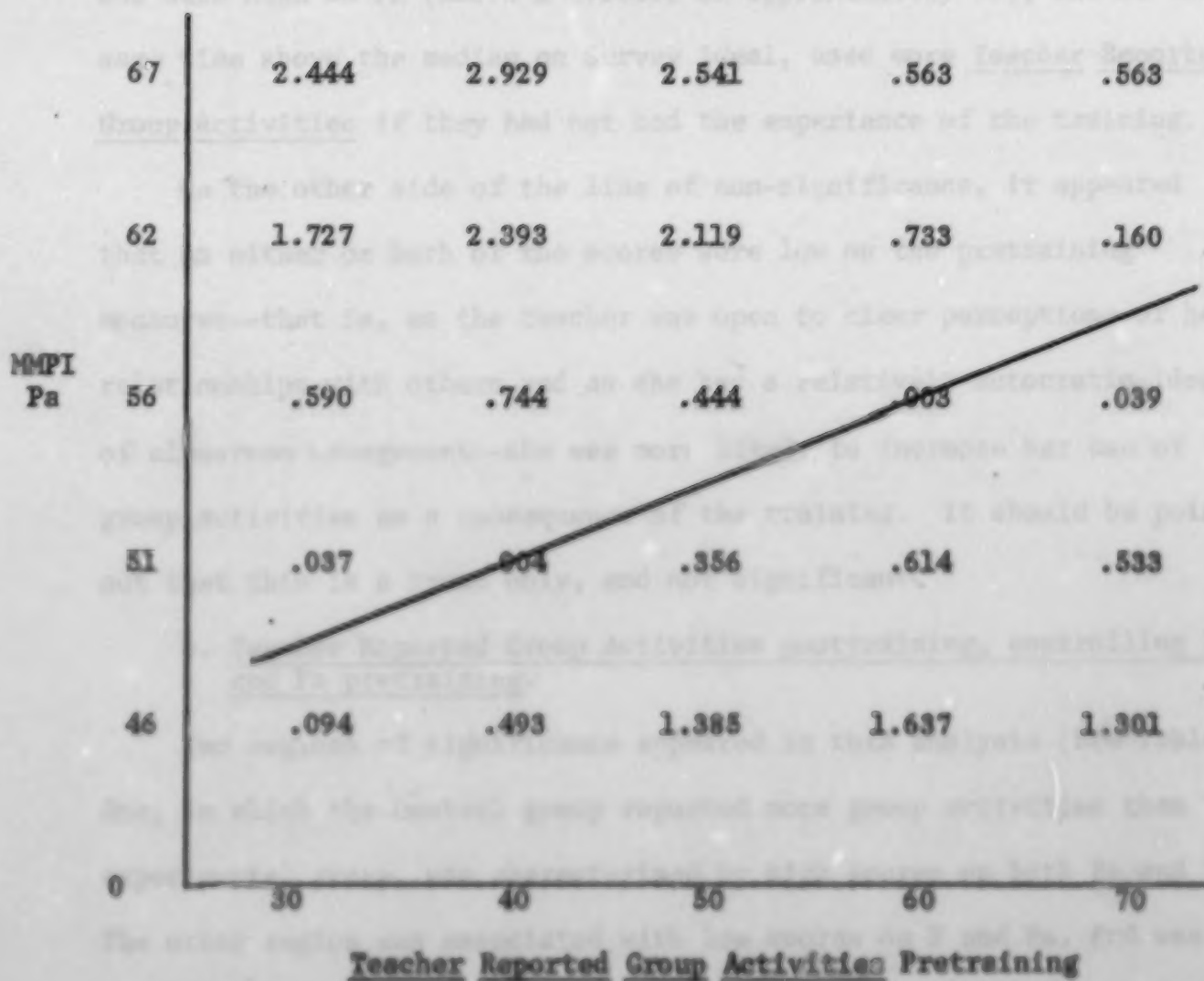
18. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to Teacher Reporter Group Activities.

- a. Teacher Reported Group Activities posttraining, controlling Teacher Reported Group Activities and Pa pretraining.

No region of significance emerged in this analysis, with the largest F-ratio approximately 3 (See Table 36). The trend was in the direction of subjects low on Pa reporting more group activities after the training, and high scores on Pa predicting better performance within the control group.

Table 36

Johnson-Neyman Tests of Significance of Differences
Between Groups in Teacher Reported Group Activities
Controlling Pretraining Teacher Reported Group
Activities and MMPI Pa¹
(F ratios)



* = P.05 (4.055 for 1,45 df)

** = P.01 (7.228 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

b. Teacher Reported Group Activities posttraining, controlling Pa and Survey Ideal pretraining.

As shown in Table 37, one region of significance appeared. The relationship of the region of significance and the line of non-significance to the two pretraining variables indicated that subjects who were high on Pa (above a T-score of approximately 60), and at the same time above the median on Survey Ideal, used more Teacher Reported Group Activities if they had not had the experience of the training.

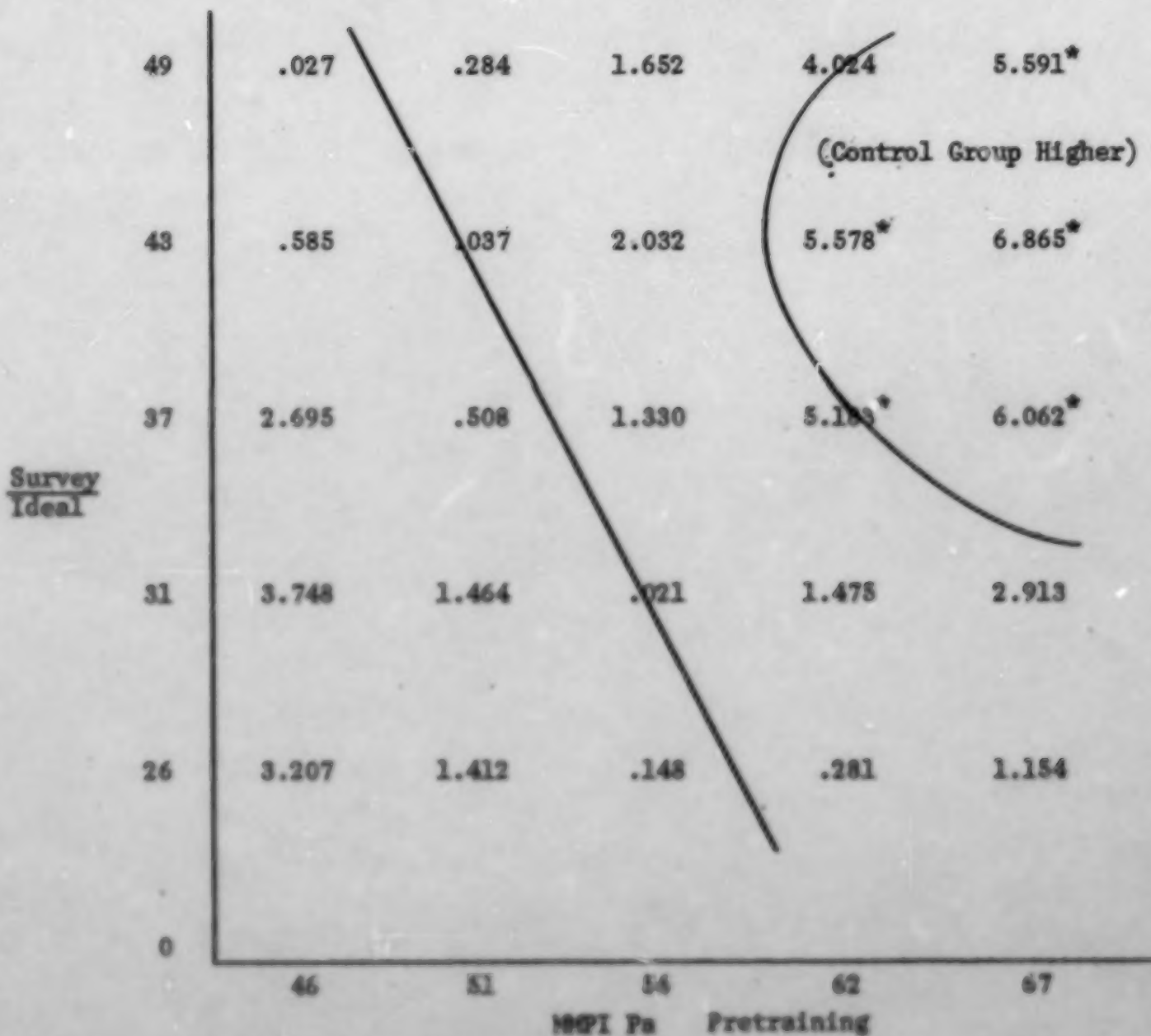
On the other side of the line of non-significance, it appeared that as either or both of the scores were low on the pretraining measures--that is, as the teacher was open to clear perceptions of her relationships with others and as she had a relatively autocratic ideal of classroom management--she was more likely to increase her use of group activities as a consequence of the training. It should be pointed out that this is a trend only, and not significant.

c. Teacher Reported Group Activities posttraining, controlling F and Pa pretraining.

Two regions of significance appeared in this analysis (See Table 38). One, in which the control group reported more group activities than the experimental group, was characterized by high scores on both Pa and F. The other region was associated with low scores on F and Pa, and was one in which the performance of the experimental group was higher. If this result is taken at face value, the same trend appeared here that has appeared in other analyses, namely that teachers characterized as well-adjusted by the personality measures improved performance as a consequence of the training whereas teachers without these personality resources

Table 37

Johnson-Neyman Tests of Significance of Differences
Between Groups in Teacher Reported Group Activities
Controlling MMPI Pa and Survey Ideal¹
(F ratios)



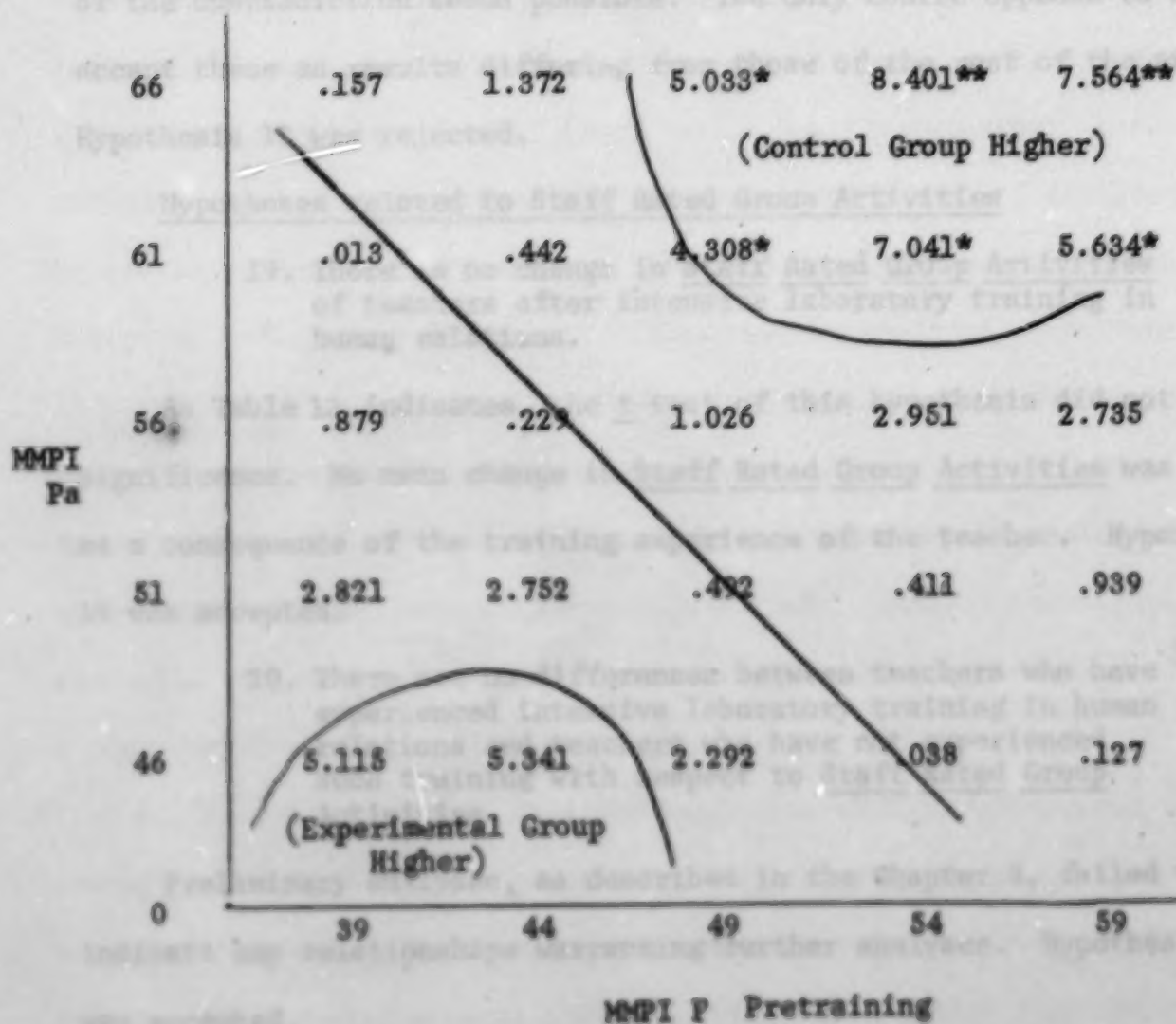
* = P.05 (4.055 for 1,45 df)

** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

Table 38

Johnson-Neyman Tests of Significance of Differences
Between Groups in Teacher Reported Group Activities
Controlling MMPI F and Pa¹
(F ratios)



* = P.05 (4.055 for 1,45 df)

** = P.01 (7.225 for 1,45 df)

¹ Curved line indicates region of significance; straight line indicates region of non-significance (approximations).

appeared to perform better untrained. It seems inescapable that this is inconsistent. In the pretraining results, Teacher Reported Group Activities were interpreted as indicative of defensiveness, and the same was true of Social Structure in the posttraining results. No resolution of the contradiction seems possible. The only course appears to be to accept these as results differing from those of the rest of the study. Hypothesis 18 was rejected.

Hypotheses related to Staff Rated Group Activities

19. There is no change in Staff Rated Group Activities of teachers after intensive laboratory training in human relations.

As Table 13 indicates, the t test of this hypothesis did not approach significance. No mean change in Staff Rated Group Activities was shown as a consequence of the training experience of the teacher. Hypothesis 19 was accepted.

20. There are no differences between teachers who have experienced intensive laboratory training in human relations and teachers who have not experienced such training with respect to Staff Rated Group Activities.

Preliminary analyses, as described in the Chapter 3, failed to indicate any relationships warranting further analyses. Hypothesis 20 was accepted.

Summary Discussion

One of the general findings of these analyses is that of providing additional support for the necessity of using complex statistical procedures when dealing with behavior as complex as the classroom interaction.

of teacher and pupils. Mean differences between experimental and control group were consistently small; analyses which treated only mean differences would have found nothing. Yet, as the Johnson-Neyman technique demonstrated, important changes did take place in the experimental group (See Table 39 for a summary of these results). Real change was not reflected as mean change because sub-groups of the experimental group typically changed in opposite directions. Equally important, this method of analysis identified the subgroups which reacted differently to the experimental treatment, and provided cutting scores by which the change to be expected for an individual teacher could be predicted. This is particularly important, since some subgroups not only failed to profit from the experimental educational experience studied, but actually performed "less well" on the classroom behavior measures. Application of these results would prevent the doubly wasteful procedure of applying an expensive training procedure to teachers who would teach "less well" as a consequence of it.

On the positive side, however, subgroups of the experimental group changed in significant and practically important ways; toward teaching more democratically, by relating more warmly and permissively to their pupils, and by using greater personal interaction rather than written materials. Most important, change was reflected in the increased social skills of their pupils.

From the integration of these results, it is obvious that for those teachers with requisite, measurable personality resources, laboratory training in human relations is an effective way of advancing toward the ideal of teaching outlined in the first chapter.

Table 39

Summary of Significant Posttraining Differences
Between the Experimental and Control Groups as
Identified by the Johnson-Neyman Technique¹

Posttraining Measure	
Lower	Higher
(Less Traditional)	(More Traditional)
Verbal Emphasis	
Low Sc, High VE ($P < .01$)	High Sc, Low VE ($P < .05$)
Low Pd, High VE ($P < .01$)	High Pd, Low VE ($P < .05$)
(Fewer Small Groups)	(More Small Groups)
Social Structure	
Low L, and Pa ($P < .05$)	High L and Pa ($P < .01$)
Low Hy and Pa (n.s.)	High Hy and Pa ($P < .01$)
High SS, Low Pa (n.s.)	Low SS, High Pa ($P < .05$)
High SS, Low L (n.s.)	Low SS, High L ($P < .01$)
Low Hy and L (n.s.)	High Hy and L ($P < .01$)
Low Pa and R (n.s.)	High Pa and R ($P < .01$)
(Less Supportive)	(More Supportive)
Emotional Climate	
High Hy and MTAI ($P < .05$)	Low Hy and MTAI (n.s.)
High K and MTAI ($P < .05$)	Low K and MTAI (n.s.)
High R, Mid EC ($P < .05$)	Low R, all EC (n.s.)
High R, all Hy ($P < .01$)	Low R, all Hy (n.s.)
High R, Mid MTAI ($P < .01$)	Low R, all MTAI (n.s.)
High Pd, Mid MTAI ($P < .01$)	Low Pd, all MTAI (n.s.)
High Pd and R ($P < .01$)	Low Pd and R (n.s.)
High Pd, Low Ho ($P < .01$)	Low Pd, Mid Ho (n.s.)
High Pa and L ($P < .01$)	Low Pa and L (n.s.)
(Lower)	(Higher)
Social Relations Skills	
Low Ho, High BTOI ($P < .01$)	High Ho, Low BTOI ($P < .01$)
(Lower)	(Higher)
Teacher Reported Group Activities	
High Pa and Survey Ideal ($P < .05$)	Low Pa, and Survey Ideal (n.s.)
High Pa and F ($P < .01$)	Low Pa and F ($P < .05$)

1. The table is read as follows: The first entry under Verbal Emphasis indicates that experimental teachers low in Sc and high in VE pretraining became less traditional (lower VE) following training, compared with the control group ($P < .01$). Further, the experimental teachers high in Sc and low in VE became more traditional (higher VE) following training, as compared to the control teachers ($P < .05$).

CHAPTER V

DISCUSSION AND IMPLICATIONS

The aim of this study was to evaluate laboratory training in human relations for elementary classroom teachers. Utilizing a control and an experimental group design, a number of measures of teacher and pupil behavior were obtained before and after an experimental procedure was experienced by one group of teachers. The experimental procedure consisted of laboratory training in human relations, and although different in some aspects, it followed closely the plan of training offered by the National Training Laboratory in their Bethel, Maine, summer workshops. A summary of the results, a caution in their interpretation, and some comments concerning their importance to teachers follow.

Summary of Results

Both pretraining and posttraining data were analyzed. The latter were divided into two major classifications: attitude and personality inventory measures from teachers, and classroom behavior measures that involved both teachers and pupils.

Pretraining data

When the relations between the various inventory measures of the teachers, and the measures of classroom behavior of teachers and pupils were examined, a number of findings emerged: "Good" teaching, as defined in Chapter 1, was found to be related to good personal adjustment. Of

the six classroom behavior measures, four were predicted at a statistically significant level by each of three keys of the MMPI, Psychopathic Deviate (Pd), Psychasthenia (Pt), and Schizophrenia (Sc). Two other inventory scores, Survey Discrepancy and MMPI Depression (D) were significantly correlated with three of the behavioral measures. At the best, the relationships were as high as those between intelligence and achievement among pupils.

When biographical data were related to the teachers' use of group activities in the classroom, complex relations were found between years of experience and one of the measures, but in general few significant relationships were found as compared with the number of relations tested.

These results were taken to suggest the need for studying the prediction of classroom behavior, rather than ratings of teacher behavior, and to indicate the importance of teacher personality characteristics as determiners of classroom behavior.

Posttraining data

Attitude and personality measures. If the classroom teachers who participated in the laboratory training in human relations are considered independently from those who did not participate, they changed significantly in their attitudes towards pupils and their ideal of educational leadership as measured by the Minnesota Teacher Attitude Inventory (MTAI) and the Survey of Educational Leadership Practices-Ideal. After training, the teachers became more accepting and permissive in their attitudes towards pupils, and more democratic in their ideal of educational

leadership. When compared with teachers who did not participate in the laboratory training in human relations, the experimental teachers changed significantly only in terms of their attitudes towards pupils. Statistically significant changes were not found for the measures involving attitudes towards teaching, attitudes towards the school's practice of educational leadership, or measured personality characteristics.

Classroom behavior measures. When twenty-five Johnson-Neyman analyses were used to assess significance of change between the two groups on the six classroom behavior measures, "regions of significance" were obtained in twenty instances.

1. Observation Schedule and Record data.

- a. Verbal Emphasis (VE). Significantly lower scores for the experimental group (less verbal emphasis in the classroom) characterized subgroups of the experimental teachers who were high in pretraining VE and low in MMPI Sc and Pd. Teachers tending toward maladjustment did not appear to profit from the training experience, nor did teachers low in pretraining VE; rather, they changed in the direction of increased Verbal Emphasis.
- b. Social Structure (SS). Subgroups of the experimental teachers showed increases in the use of small group activities in their classrooms following the training. This was true for all analyses related to Social Structure.

These subgroups were characterized by relatively high scores on various combinations of MMPI keys, L, Pa, Ry, and R. In the analyses in which pretraining Social Structure was a variable, low initial use of small group activities before training predicted an increased use of small group activities in the classroom after training. One (admittedly post hoc) interpretation of this finding is that experimental group teachers that tended toward maladjustment acquired increased understanding of the goals of the experimenters, and responded by introducing small group activities at least when an observer was present. According to this interpretation, the better adjusted experimental teachers felt little need to change their classroom behavior or organization with the appearance of an observer. The performance of the better adjusted teachers in the experimental group was little different from that of teachers in the control group.

- c. Emotional Climate (EC). In analyses dealing with Emotional Climate where regions of significance were found, the control group was significantly higher in posttraining scores when these scores were controlled on selected MMPI keys (high Pd, Ry, K, and R; low Ho). The less well-adjusted teachers decreased in warmth and supportiveness following the training. Low Ho scores were interpreted as indicative of an inability

to verbalize negative feelings toward self or others.

Although the MTAI appeared in several of these analyses, it did not seem to contribute much to the determination of a region of significance; it apparently provided a cut-off above which relationship with other factors occurred.

2. The Russell Sage Social Relations Test (RSSR).

Increased skill in human relations was found for the pupils of the experimental group of teachers who also scored high on MPTI - Ho, and low on BTOT. This would suggest that increased skill in teaching social relation skills (i.e., ability to plan and carry out group problems) can be expected from some teachers who have participated in laboratory training in human relations. Such a statement can be made only for those teachers who were able to express negative feelings about themselves and others (not truly hostile) and who also remained in teaching in spite of dissatisfaction with the profession. Another way to look at this finding is that significant differences in pupil behavior on the RSSR existed between those experimental and control teachers who have the personal characteristics indicated, with differences favoring the experimental group.

3. Teacher Reported Group Activities.

Decreased use of group activities of this sort was found for experimental teachers high on Pa, F, and Survey Ideal. This result appears to follow others, in that tendency toward maladjustment predicts decreased use of group activities. This

interpretation is made doubtful, however, by the evidence reported earlier which suggests that Teacher Reported Group Activities is at least partly a measure of defensiveness. The experimenters accept this as a conflicting result.

4. Staff Rated Group Activities.

For this measure, no region of significance was found.

Relation of Pretraining to Posttraining Data

Considerable parallel can be seen between the pretraining and post-training findings. With few exceptions, the attitude and personality characteristics which predicted "good" teaching, also predicted profit from the experimental training procedure. The parallel gives support to both findings, and also has something to say about the effect of the training. It is this: the same personal traits predict "good" teaching, with or without the training, but the training increased the degree of difference between greater and lesser skill. The effect of the training was to help the teacher realize his potential--to maximize the translation of his potentiality into actuality. A "good" teacher is made a better teacher as a result of the training procedure.

General Interpretation

As in many evaluative studies involving complex human learning, the results of this study need to be interpreted carefully and with some degree of caution. When all the results are considered, it appears that two factors were important. The first was that specific personality resources are necessary for a teacher either to teach by relating effectively to

pupils (pretraining results) or to profit from the training (posttraining results). The second was that there must be some personal "felt need" to change. The training was effective for some teachers who changed in ways that were reflected not only in what they said and did in the classroom, but also in how their pupils acted. The training was not effective for teachers who possessed other specified personal characteristics; indeed after the training experience, these teachers as a group changed in the "wrong" direction. From these data, positive change was suggested as generally associated with the better-adjusted teachers. All in all, the data suggested that personal qualities determine the reaction of teachers to the experience of laboratory training in human relations; that these personal qualities could be identified, and that the effects of the training could be assessed and measured in a relatively objective manner.

A Word of Caution

One of the methodological problems of a study such as this is the possibility that the results reflect the special attention given to the experimental group—the "Hawthorne Effect." This influence cannot be discounted, yet several observations suggest that it was minimised. First, the method of recruitment was planned to reduce motivational effects. Each teacher who participated in the project was interviewed personally before volunteering and the project was explained in detail. Typically, this interview lasted from fifteen minutes to an hour and questions were freely and frankly answered. Then, during the collection

of the pretraining and posttraining data, observers visited every classroom repeatedly and a data collection team administered a situational test in each classroom. The field staff became well acquainted with the teachers and felt they were not "outsiders" to the various classrooms.

The chief difference between the two groups, of course, was that the experimental group participated in a summer workshop. To balance this experience, the control group had the option of taking a college course of their own choosing at no expense. This was a verbalized reward for them, and hopefully tended to equate motivational factors.

In addition, members of both the experimental and control groups could have their own pretraining and posttraining data explained to them in an individual interview, with interpretations of all inventory data. Members of teachers from both groups availed themselves of these opportunities.

Every attempt was made to make all teachers feel that they were participating in a significant and important educational project. The attitudes of the field staff of the project reflected this feeling of worth. Descriptions of the project and of results were presented in two papers read at professional meetings and in an article published in a professional journal, copies of which were sent to all participants with a comment that "their results were being presented nationally." An article in a local newspaper gave publicity to the project.

There was also every reason to think that at least some of the

important dimensions observed in the classrooms were unknown to the teachers. No specific description of the observational schedule (OSCAR) was made and it seems unlikely that any teacher discovered the specific points for which the classroom observations were conducted. It is probable that the experimental group acquired a better understanding than did the control group of what group activities meant to the experimenters during the course of the training sessions. It is possible that this information did influence certain teachers during observation. Both groups knew that the ability of the pupils in group problem solving was being measured by the Social Relations Test, but it seems doubtful that temporarily changing pupils' skills on this measure was possible.

Finally, there is no escaping the result that on each criterion approximately half of the experimental group changed behavior in a direction opposite from the predicted rationale of the study. It is hard to see how this sort of result can be accounted for by an over-all motivational factor such as the "Hawthorne Effect." Although educators need to view the results of this study, or any other similar effort, with caution until an independent replication is completed, the results are promising and hold implications for a number of areas in the educational world.

Implications for Teacher Classroom Performance

Of the several areas in which this study may have worth to educators, one of the most important is in its implications for the classroom teacher in his day to day relationships with pupils, parents, teachers, and other

school personnel. Recognition should be made that human relations skills, the use of group activities in the classroom, and the maintenance of a social-emotional climate in the classroom that promotes optimal pupil learning all depend on the sensitivity and skill of the teacher. These, in turn, depend on her unique pattern of personality and attitude characteristics in relation to interpersonal relationships, and on specific human relations training. Until there is widespread acceptance of this principle, the picture of classroom curriculum improvement is indeed a dismal one. Not until teachers, and the key people in effecting successful curricula revision in the classroom, are willing to look at themselves and how they effect pupils in the school, does there appear to be much hope for improvement of our schools. The question to be asked by the teachers is obvious. Is it worth while to examine oneself in terms of effect on other people? To this question can come a response, based on the results given in this report and said with some reliability: a predictable subgroup of teachers who experienced laboratory training in human relations changed in a "better" way as judged by a defined ideal of teaching. When a teacher finds his work somewhat easier, more relaxed, and more satisfying than before, most would agree that the examination of one's behavior is worth the effort. When pupils gain in measured skills, surely the effort is worth while.

The important implication of this study for classroom teachers is that here is a way, a specific technique, for achieving the ideal of teaching that is in keeping with an up-to-date concept of the teaching-learning process. The findings of this study carry still another

implication for the teacher. If pupil achievement is desired in all areas, and skill in human relations is accepted as a worthy objective for pupil achievement, then teacher skill in human relations is demanded.

Although the point has not been treated in this research, there is every reason to believe that fostering these skills in the teacher is not enough. He must be provided a climate by his administration conducive to freedom, self-respect, and creativity. Just as the pupil requires this climate to work and grow, so does the teacher. The implications for administrators are obvious. Other researchers (Combs, 1954; Niles, 1960) demonstrate the utility of similar training in changing administrator behavior. Both areas of research gain support from each other.

Implications for Programs of Teacher Selection

For many years, the selection of teachers at the level of pre-service education programs has been an issue. To be sure, the supply of teachers has been limited, prediction studies have shown disappointing results, and for a variety of reasons the colleges and universities primarily responsible for teacher education have not seen fit to take a forth-right stand on restricting their student populations. At the same time, it is hard to see how programs of curriculum revision and upgrading of the teaching profession can proceed far unless the teachers involved are amenable to change, are pliable in terms of their behavior, and are skillful in working with others.

This raises the question of whether the selection that has been done, or the concern expressed for it, has dealt with the wrong qualities of teacher candidates. Validities in the order of .20 for tests of intellectual qualities as predictors of teacher effectiveness are frequent. In contrast, this research found some relationships in the order of .40 and .50 between personality measures and actual measures of teacher-pupil classroom behavior.

This study has demonstrated that teachers who have these desirable personal qualities can be identified, and that the combinations of traits can be identified at reasonable levels of statistical significance (though perhaps by cumbersome statistical procedures). If teaching is to be improved, one logical place to start is with the teacher preparation institutions. With a weak link at this level, it is hard to see how teacher quality can be upgraded in the long run. Recognizing the many varied problems, these arguments still hold:

1. Personality characteristics can be identified, and become useful in the selection of teachers;

2. If creative teachers in warm, accepting classrooms are to develop creative pupils, then teacher selection on the basis of personality characteristics must be made;

3. If individuals who can learn modern methods and procedures and break from the tried and found-wanting methods of teaching are to be selected, then personality and attitude factors must be utilized in encouraging and selecting teacher candidates.

Although such a program as implied here would take courage on the part of deans and faculty committees, it is hoped that the data of this study may provide support, as well as a first approximation of levels to be considered in selecting teachers.

Implications for Pre-service Education of Teachers

If the problem of selecting people who can profit from laboratory training in human relations is at least partially resolved by this study, a third logical implication of this study is for the revision of many courses within the teacher preparation sequence. The inability of some teachers to see individual differences among their students in the classroom is well known, as is the inability of some students in a teacher education program to understand the importance of many of their assigned activities. The results of this study suggest that laboratory training of the kind done here would result in developing, fairly economically, the kind of sensitivity to people that is required of successful teachers. The foundation fields of education, after all, attempt to apply information toward one end--the ultimate improvement of instruction. But can any number of courses as typically presented accomplish the improvement of instruction which is envisioned in Chapter I? They appear to leave room for improvement, so far.

The results of this study support the position that the "ideal of teaching" developed in Chapter I and closely allied to the ideal of teaching developed by Hughes and her associates (1959) can be achieved through a meaningful, personal experience that is supplied by the

training procedures studies. While not minimizing the importance of the usual methods courses in terms of emphasis on knowing the available materials of instruction, broadly conceived, the results of this study indicate that present methods courses can be supplemented by a "Materials and Methods in Working with Groups" with profit. No where in the traditional Education course has there been provided an opportunity for teachers to learn, through first-hand experience, how to analyze and understand what is happening within a group, or how to work effectively with groups. Far too often, the wrong things are emphasized in observation and student teaching experience. Instead of developing sensitivity to groups, student teachers are expected to mimic the errors of insensitive and autocratic teachers who themselves maintain less than desirable levels of human relations. The recent statement of Stratemeyer (1961) is of importance here. In speaking of providing a high quality student teaching experience, she said: "The profession has made very real strides in recognizing the need for direct experience in the preparation of teachers and in providing a range of opportunities. But more important than the number and extent of student teaching and other laboratory experiences is the quality of the experience provided." Implicit in quality of experience, of course, is the criterion of relevance on a highly personal basis. This criterion is immediately met by the training experience.

Further, five functions of laboratory experiences as they develop needed qualities in future teachers were identified:

1. To provide functional understanding that goes beyond verbalization;

to give meaning to theory and ideas.

2. To help the student see his needs more clearly and to provide an opportunity to raise questions.

3. To provide opportunity for the student to test his ability to act in keeping with his beliefs.

4. To develop the initial security that creates enthusiasm for teaching.

5. To help the student develop power to reflect, to judge, to reason as he meets and deals with particular situations.

The parallel between these five points and the description of laboratory training in human relations given in Chapter II is striking.

The methods employed by laboratory training in human relations are obviously one way to achieve these goals; as such, laboratory training in human relations could make a real contribution to the quality of teacher preparation programs. It is little wonder that some survey studies have found student teaching to be rated as the "most valuable" part of the teacher preparation curriculum. It should be; it is the only opportunity for future teachers to learn directly the requirements of teaching from a realistic situation. The present study has shown that work with teachers can effect change in the classroom behavior of both teachers and pupils. Certainly, such a procedure should have merit for experimentation and possible usage in a teacher preparation program, as a means of providing another relevant and meaningful preparatory experience for teachers.

Although aimed at the education of school administrators, we might

well echo the words of a recent yearbook, as applied to teacher preparation: "The mediocrity of programs of preparation comes from the sterility of methods reported. Instruction is classroom bound; . . . (it) is talked about rather than observed, felt, and in these and other ways actually experienced (Moore, 1960). The implication of the study again is clear: here is one way to achieve such experience.

Implications for the In-service Education of Teachers

After the pre-service preparation of teachers is considered, another logical area is the in-service education of teachers. To the extent that personality factors are important determinants of teacher performance, the in-service program must reflect a sensitivity to these factors. Supervisors and school principals must recognize these factors if their efforts are to be effective. Imposition, direction, even guidance (when guidance implies skillful manipulation by an administratively superior person) are not efficient means of modifying the personality characteristics and attitudes of teachers. Less formal, more intimate, self-directed groups hold greater promise for effecting these kinds of change. The effectiveness of Kelley's (1951) workshop way of learning, of the conception of the teaching-learning process of Cantor (1953), of group centered leadership growing out of the work of Rogers (1951) and Gordon (1955), and of the training designs of the National Training Laboratory (Bradford, Gibb, & Lippitt, 1960) may depend upon this common element of small, intimate, permissive, and self-directing groups. Supervision may most effectively grow out of such groups and a major task of

educational supervisors may be to develop such groups of teachers.

The study implies also that supervisors need relatively accurate evaluations of their teachers. It was concluded that unless teachers have sufficient personality resources, this method can not create a classroom in which there are desirable human relations and optimal pupil learning. As educators design in-service education programs, they need to be aware of the limits placed by attitudes and personality on teacher development in the area of group skills. In some situations this would mean that supervisors would provide laboratory training in human relations for those teachers who seem most likely to profit from this experience. Differing programs for the rest of the teachers also need to be planned.

The possibility should be recognized, however, that a wider group of teachers may be able to profit from this training if the work situation is one supportive of change. At least some of the subjects of this study did not have such support, and the likelihood cannot be dismissed that this influence may have made a difference in their lack of change or even change in the wrong direction.

This same possibility of use with a wider group applies as well in the pre-service training of teachers, where an atmosphere more supportive of change could be provided.

Recognition is further made that human relations competencies are not the only competencies needed by teachers. "A multidimensional definition of teacher competency may imply that in order for a child to receive a balanced educational program he needs many and varied teachers. Certainly, those people who can profit from the experience

each making their own contribution to the pupil's growth. Supervision, then, would necessitate a planned continuity of teachers with varied competencies" (Rippy, 1960, p. 128).

Implications for Laboratory Training in Human Relations

Finally, a number of important questions need to be considered by those who are interested in promoting laboratory training in human relations as a technique for developing individual sensitivity in interpersonal relationships. Although it is a real question whether people change more, the same, or less as a result of this experience if it is in a "cultural island," analysis of reactions to and results of the training of teachers who lived at home indicated feasibility of laboratory training during the regular collegiate summer sessions. Given the availability of individuals who are capable of assuming the trainer role, it is conceivable that laboratory sessions might well become an accepted offering at many institutions, available on a wide basis as a means to raise the general level of teacher performance.

Another area in which this study provides special information relates to who should participate in this kind of training. Results from this study were quite clear cut. A person who did not have personality resources sufficient to the requirements of the training reacted by increased defensiveness rather than growth. By no stretch of the imagination should this kind of training be promoted as a cure-all, or a method that will solve all the many-faceted interpersonal problems of the educational world. Certainly, those people who can profit from the experience

should be given the opportunity, and the schools would be the better for many teachers having received this kind of training. But in no sense should it be required for all.

Finally, this study demonstrated the feasibility of quantifying research on laboratory training in human relations and its effect, and the utility of measuring change in behavior. And the infrequency with which change in teacher or pupil behavior has been the criterion in educational research seems notable, when change in behavior is the goal of education. Much of the available research has suffered from the lack of a planned and coherent design. Faith in laboratory training has sometimes depended on questionable data; measures of known validity and reliability have often been lacking; and reliance, sometimes of necessity, has been placed in questionable self-ratings, loosely and hurriedly constructed self-report inventories, ratings completed by individuals who have had little or no opportunity to observe behavior adequately, and hard-to-interpret unquantifiable projective devices (Miles, 1959, p. 223). Sometimes it has seemed necessary to publish some data rather than no data; on occasion it seems that shabby research has been excused on timely grounds.

Certainly, the vagaries of research dealing with human beings in real-life situations are well known. But they should be no deterrent to an attempt to use reliable measures of behavior and complex statistical designs when they are appropriate. It is difficult to carry out a research design when collection of data takes a year or more, to say nothing of the

time-consuming and frustrating experience of analyzing data and writing about a project that long ago grew somewhat cold. But a method as promising as human relations training deserves long term attention, and also deserves the kind of research that will indicate unequivocally its strong points, enumerate fairly its weaknesses, and point out the situations and individuals with whom it is appropriate.

A Final Word

From application of the results of this study, it is hoped that the achievement of the ideal of teaching developed in the first chapters can be better realized than if the study had not been done. Application of the results appears desirable at a number of different levels. At one level, the data are suggestive of a starting point for a program of teacher selection based, not on the need for academically qualified individuals, but rather on the need for personally qualified teachers--qualified in the sense that they are amenable to development and change through the years they are teaching, for the profit of their students. At a different level, the effectiveness of professionally oriented meetings could be improved by the use of techniques and methods perfected by laboratory training in human relations. At still another level, the data suggest that school administrators who are interested in programs of curriculum development, reorganization, or improvement might well consider the opportunities of increasing some teachers' skills by having available training programs in human relations. As a final point, the teacher skills studied here are only likely to be put in practice in a

climate where administrators also possess the same skills and insights.

If the schools are to become the place in which pupils learn the skills necessary for successful living in the American Democracy, the teachers of the pupils certainly need to have the requisite skills themselves. As voices are raised in support of the public school system, and its hopes and promise for the years ahead, attention must be directed to imaginative ways and means to educate teachers.

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Appendix A
List of APPENDIXES
Used in This Study

Appendix A

Minnesota Multiphasic Personality Inventory

Scales and Abbreviations

Scale Title	Abbreviation
Minnesota Multiphasic Personality Inventory	MMPI
1	1
2	2
3	3
4	4
5	5
6	6
7	7
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11	11
12	12
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93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

Appendix A
List of MMPI Abbreviations
Used in This Study

Appendix A

Minnesota Multiphasic Personality Inventory

Scales and Abbreviations

Scale Title	Abbreviation
<u>Minnesota Multiphasic Personality Inventory</u>	<u>MMPI</u>
L	L
F	F
K	K
Hypochondriasis	Hs
Depression	D
Hysteria	Hy
Psychopathic Deviate	Pd
Masculinity Femininity	Mf
Paranoia	Pa
Psychasthenia	Pt
Schizophrenia	Sc
Social Introversion	Si
Hypomanic	Ma
Anxiety	A
Repression	R
Ego Strength	Es
Hostility	Ho
Pharisaic Virtue	Pv
Teacher Attitude	Ta

Appendix A

Table 40

Sex of the Teachers

Sex	Experimental Group		Control Group	
	Number	Per Cent	Number	Per Cent
Male	21	91.30	27	96.43
Female	2	8.70	1	3.57
Total	23	100.00	28	100.00

Appendix B

Personal and Professional Characteristics
and Pretraining Comparisons Between
the Experimental and Control Groups of Teachers

Status	Experimental Group		Control Group	
	Number	Per Cent	Number	Per Cent
Single	3	13.04	1	3.57
Divorced	4	17.39	2	7.14
Widowed	3	13.04	1	3.57
Married	13	56.53	14	50.00
Total	23	100.00	28	100.00

Appendix B

Table 40

Sex of the Teachers

Sex	Experimental Group		Control Group	
	Number	Per Cent	Number	Per Cent
Male	21	91.30	27	96.43
Female	2	8.70	1	3.57
Total	23	100.00	28	100.00

Table 41

Marital Status of the Teachers

Status	Experimental Group		Control Group	
	Number	Per Cent	Number	Per Cent
Single	3	13.04	8	28.57
Divorced	4	17.39	0	
Widowed	3	13.04	1	3.57
Married	13	56.53	19	67.86
Total	23	100.00	28	100.00

Appendix B

Table 42
 Grade Taught by the Teachers

Grade	Experimental Group		Control Group	
	Number	Per Cent	Number	Per Cent
One and Two	9	39.13	11	39.28
Three, Four and Five	9	39.13	11	39.29
Six and Seven	5	21.74	6	21.43
Total	23	100.00	28	100.00

Table 43

Years of Teaching Experience

Years	Experimental Group		Control Group	
	Number	Per Cent	Number	Per Cent
1 - 5	7	30.43	10	35.71
6-10	6	26.09	4	14.29
11-15	1	4.35	4	14.29
16-20	3	13.04	1	3.57
21-25	3	13.04	6	21.43
26-30	1	4.35	3	10.71
31-35	2	8.70	0	0
Total	23	100.00	28	100.00

Appendix B

Table 44

Mobility of the Teachers as Evidenced
by Number of Different School Systems Served

Number of 5 Systems	Experimental Group		Control Group	
	Number	Per Cent	Number	Per Cent
1	11	47.83	10	35.71
2	6	26.09	5	17.86
3	4	17.38	6	21.43
4	1	4.35	5	17.86
5	1	4.35	1	3.57
6	0	0.00	1	3.57
Total	23	100.00	28	100.00

Table 45

College Degrees Held by the Teachers

Degree	Experimental Group		Control Group	
	Number	Per Cent	Number	Per Cent
None	1	4.35	0	0
BA	21	91.30	23	82.14
MA	1	4.35	5	17.86
Total	23	100.00	28	100.00

$$\chi^2 = .53 \quad .50 < P < .50$$

Appendix B

Table 46

Years of College Education of Teachers

Years	Experimental Group		Control Group	
	Number	Per Cent	Number	Per Cent
3	1	4.35	0	0
4	10	43.48	8	28.57
4.5	1	4.35	6	21.43
5	7	30.42	8	28.57
5.5	2	8.70	1	3.57
6	2	8.70	5	17.86
Total	23	100.00	28	100.00

Table 47

 Classification of Experimental and Control Teachers in Terms of Socio-Economic Level of their School Assignment, 1959.^a

	Experimental Group Frequency	Control Group Frequency	Total
"Upper"	14	15	29
"Lower"	10	16	26
Total	24	31	55

$$a. \chi^2 = .5370 \sim .30 < P < .50$$

Appendix B

Table 48

Analyses of Variance Between the Experimental Group (N=23), the Control Group Willing to Participate in Training (N=18) and Control Group Members Unwilling to Participate (N=13) for Pretraining Measures

Measure	Mean Square		F ratio
	Between	Within	
BTOI	91.84	186.70	<1
MTAI	2218.52	1124.63	1.97
MMPI			
K	25.30	46.59	<1
F	11.80	21.69	<1
Hs	23.04	70.56	<1
D	88.44	60.55	1.46
Hy	29.03	64.89	<1
Pd	33.29	72.68	<1
Mf	37.41	132.46	<1
Pa	100.74	38.74	2.60
Pt	63.37	55.37	1.45
Sc	6.49	35.19	<1
Si	16.47	52.49	<1
Ma	36.98	80.17	<1
L	37.54	60.33	<1
A	381.16	66.96	5.69**
R	131.43	47.67	2.76
Es	20.70	38.16	<1
Ta	25.60	64.85	<1
SURVEY			
Ideal	25.97	25.47	1.02
Actual	12.17	67.14	<1
Discrepancy	21.54	109.98	<1
OSCAR			
EC	129.49	25.92	4.995*
VE	15.00	48.02	<1
SS	4.79	45.97	<1
RSSR	237.82	837.96	<1

* $P < .05$

** $P < .01$

a. $df = 2.51$; $F_{.05} = 3.18$; $F_{.01} = 5.06$

Appendix C

Table 49

Intercorrelations Between the Clinical Scales of the
Minnesota Multiphasic Personality Inventory
Pretraining Data

See	Sc	Sc	Sc	Sc	Sc	Sc	Sc	Sc	Sc	Sc
Sc	Sc	Sc	Sc	Sc	Sc	Sc	Sc	Sc	Sc	Sc
K	.217	-.232*	.392***	.416***	.320	.027	-.233*	.281**	-.339**	.024
Ma		.339**	.730***	.404***	-.020	.102	.426***	.505***	.164	.241*
D			.360	.273**	.987	.118	.516***	.341**	.423***	-.027
Hy				.432***	.034	.042	.333**	.366***	-.037	.215
Pa					-.028	.873***	.302***	.544***	-.129	.257*
Pt							.090	.134	-.130	.031
Sc								.171	-.183	.142
Si								.633***	.129	.216*
Ma									.222	.213
										-.383***

Appendix C

Miscellaneous Statistical Data

a. See Appendix A for abbreviations.

* .05 < P < .10
** .01 < P < .05
*** P < .01

Appendix C

Table 49

Intercorrelations Between the Clinical Scales of the
Minnesota Multiphasic Personality Inventory
 Pretraining Data

Scale ^a	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Si	Ma
K	.217	-.232*	.392***	.416***	.120	.027	.233*	.281**	-.339**	.034
Hs		.339**	.780***	.404***	-.020	.102	.426***	.506***	.164	.241*
D			.160	.273**	.087	.118	.516***	.341**	.423***	-.027
Hy				.432***	-.034	.092	.333**	.386***	-.037	.215
Pd					-.038	.373***	.542***	.544***	-.129	.257*
Mf						-.381***	.090	.134	-.130	.031
Pa							.256*	.171	-.153	.142
Pt								.632***	.129	.236*
Sc									.222	.213
Si										-.383***
Ma										

a. See Appendix A for abbreviations.

* .05 < P < .10

** .01 < P < .05

*** P < .01

Appendix C

Table 50

Correlations Between the Clinical Scales of the
Minnesota Multiphasic Personality Inventory
 and the Nonclinical Scales
 Pretraining Data

Scale ^a	Nonclinical Scales ^a					
	A	R	ES	Ho	PV	TA
K	-.646***	.547***	.215	-.582***	-.496***	-.624***
Hs	.064	.134	-.562***	-.058	.198	.076
D	.523***	-.015	-.296**	.258*	.270**	.299**
Hy	-.107	.372***	-.372***	-.265*	-.045	-.181
Pd	.036	.130	-.236	-.064	.055	.006
Mf	-.042	.030	.041	.159	-.030	.075
Pa	.063	-.143	-.051	-.004	.123	.069
Pt	.410***	-.037	-.317**	.043	.292**	.194
Sc	.284**	.052	-.305**	.157	.271**	.247*
Si	.418***	.185	-.363***	.120	.368***	.270**
Ma	.094	-.274**	-.241**	.294**	.268*	.337**

a. See Appendix A for abbreviations.

* .05 < P < .10.

** .01 < P < .05

*** P < .01.

Appendix C

Table 51

Intercorrelations Between the Minnesota Multiphasic
Personality Inventory Nonclinical Scales
 Pretraining Data

Scale ^a	A	R	ES	Ho	PV	TA
A		-.475***	-.345**	.629***	.591***	.710***
R			.102	-.575***	-.474***	-.608***
ES				-.211	-.514***	-.423***
Ho					.491***	.870***
PV						.855***
TA						

a. See Appendix A for abbreviations.

** .01 < P < .05.

*** P < .01.

Appendix C

Table 52

Analyses of Variance and Reliabilities^a
for three Problems of the Russell Sage
Social Relations Test, Pretraining Data

RSSR	Between Individuals		Between Stems		Residual		r_{tt}^b
	MS	df	MS	df	MS	df	
Problem 1	13.00**	55	58.94**	9	2.67	495	.793
Problem 2	13.67**	53	48.95**	9	3.37	477	.753
Problem 3	10.01**	29	30.19**	9	3.58	261	.642

** $P < .01$

a Hoyt and Stunkard, 1954.

b $r_{tt} = \frac{\text{Between individuals MS} - \text{Residual MS}}{\text{Between Individuals MS}}$

Appendix C

Table 53

Correlations between Pretraining Personality Inventory Scores and
Posttraining Classroom Measures for the Experimental and Control Groups

Minnesota Multiphasic Personality Inventory Scale	Observation Schedule and Record				Russell Sage Social Relations Test				Group Activities			
	Emotional Climate		Verbal Emphasis		Social Structure		Teacher Reported		Staff Rated			
	Exp. Cont.		Exp. Cont.		Exp. Cont.		Exp. Cont.		Exp. Cont.		Exp. Cont.	
	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.
K	.200	.475	.362	.190	.186	-.301	-.014	.360*	.039	.085	-.179	
F	-.165	-.094	.190	.066	.253	.298	-.133	-.178	-.405*	.132	.069	
Hs	.167	.268	.294	.181	.355	-.158	.034	.144	.036	.247	.030	
D	-.171	.065	.289	-.085	.220	-.039	.197	-.188	-.375*	.128	-.133	
Hy	.108	.419*	.257	.127	.278	-.364*	-.378*	.304	-.058	.200	.048	
Pd	-.209	.360*	.580*	.358*	.273	-.333	-.117	.210	-.055	.352*	-.174	
Mf	.076	-.120	-.114	-.054	.239	.400*	.152	-.072	.209	-.062	-.208	
Pa	-.517*	.280	.354	.185	.147	-.358*	-.117	-.113	-.485*	.255	-.115	
Pt	.032	.184	.161	-.078	.149	--	.088	.003	-.066	.174	.095	
Sc	.239	.256	.417*	.102	.386	-.071	.051	.131	.218	.406*	-.054	
Si	.358*	.074	-.102	-.175	-.244	-.041	-.047	-.051	.302	.229	.255	
Ma	.135	-.062	.063	.139	.258	.069	.175	.134	.182	-.313	-.130	
L	.485*	.257	.221	-.253	.091	-.566*	.026	.208	.093	.131	-.338	
A	-.006	-.223	-.236	-.068	-.139	.207	.009	-.150	.008	.021	.382*	
R	.116	.603*	.172	-.224	.144	-.374*	-.401*	.382*	.108	.205	-.036	
Es	-.134	.215*	-.212	-.003	-.201	-.147	.370*	.080	-.392*	-.160	.163	
Ho	.227	-.359	-.270	.116	-.121	.309	.432	-.294	.292	.168	.112	
Pv	.013	-.223	.055	-.251	.317	-.029	-.052	-.221	.056	-.044	-.080	
Ta	.138	-.346	-.137	-.074	.097	.166	.218*	-.291	.051	.072	.019	

* $P < .05$

Appendix C

Table 54

Correlations between Pretraining Attitude Inventories and
Posttraining Classroom Measures for the Experimental and Control Groups

Attitude Inventory	Observation Schedule and Record				Russell Sage Social Relations Test				Group Activities		
	Emotional Climate		Verbal Emphasis		Social Structure		Teacher Reported		Staff Rated		
	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	
<u>Bowers Teacher Opinion Inventory</u>	.152	.045	.210	.062	.296	.191	-.408*	.445*	.166	-.194	-.499* .094
<u>Minnesota Teacher Attitude Inventory</u>	-.030	.382*	-.111	.117	.123	-.151	.129	.362*	-.294	.117	-.7029 -.116
<u>Survey of Educational Leadership Practices</u>											
Ideal	-.386*	.133	-.090	.003	-.066	-.044	.017	.246	-.396*	-.162	.014 -.304
Actual	-.044	-.115	.130	-.041	-.046	-.188	.059	.015	.304	.023	-.7063 .350*
Discrepancy	-.146	.141	-.176	.029	.019	.104	-.051	.128	-.233	-.093	.074 -.374*

* $P < .05$

Appendix C

Table 55

Partial Correlations between Selected Posttraining and Pretraining Measures				
Post-training Measure	Constant Pretraining Measure	Pre-training Measure	Group ^a	Partial Correlation
Emotional Climate	EC	MTAI	Control	.247
	EC	K	Control	.364
	EC	Hy	Control	.487
	EC	Pd	Control	.251
	EC	Pa	Exper.	-.537
	EC	L	Exper.	.490
	EC	R	Control	.559
	EC	Ho	Control	-.282
	MTAI	K	Control	.394
	MTAI	Hy	Control	.444
	MTAI	Pd	Control	.377
	MTAI	R	Control	.536
	MTAI	Ho	Control	-.266
	K	Hy	Control	.227
	K	Pd	Control	.172
	K	R	Control	.473
	K	Ho	Control	-.130
	Hy	Pd	Control	.193
	Hy	R	Control	.515
	Hy	Ho	Control	-.243
	Pd	R	Control	.541
	Pd	Ho	Control	-.404
	Pa	L	Exper.	.422
	R	Ho	Control	-.081
Verbal Emphasis	VE	Pd	Control	.074
	VE	Pd	Exper.	.559
	VE	Sc	Exper.	.370
	Pd	Sc	Exper.	.116

a. This column indicates the group in which the highest significant correlation coefficient was obtained.

Table 55 (Cont.)

Post-training Measure	Constant Pretraining Measure	Pre-training Measure	Group ^a	Partial Correlation
Social Structure	SS	Hy	Control	-.208
	SS	Pa	Control	-.807
	SS	L	Control	-.438
	SS	R	Control	-.324
	Hy	Pa	Control	-.362
	Hy	L	Control	-.514
	Hy	R	Control	-.257
	Pa	L	Control	-.548
	Pa	R	Control	-.404
	L	R	Control	-.174
Russell Sage Social Relations	BTOI	MTAI	Control	.304
	BTOI	K	Control	.215
	BTOI	R	Control	.299
	MTAI	R	Control	.267
	MTAI	K	Control	.283
	K	R	Control	.244
	BTOI	R	Control	-.251
	BTOI	Ho	Exper.	.092
	R	Ho	Exper.	.250
	TR	Pd	Exper.	.032
Teacher Reported	TR	Sc	Control	.247
	Pd	Sc	Control	.277
	Pd	F	Control	-.001
	TR	Pa	Exper.	-.435
	TR	Ideal	Exper.	-.227
	F	Pa	Exper.	-.417
	F	Ideal	Exper.	-.304
	Pa	Ideal	Exper.	-.395
	SR	Actual	Control	-.288
	SR	Discrepancy	Control	-.318
Staff Rated	Actual	Discrepancy	Control	-.143
	BTOI	SR	Exper.	.151

a. This column indicates the group in which the original significant correlation coefficient was obtained.

Appendix C

Table 56

Tests of Hypotheses Preliminary to Application
of the Johnson-Neyman Technique

Post- training Measure	Pre- training Controls	Error MS (df=45)	Hypothesis 1 ^a		Hypothesis 2 ^b		Hypothesis 3 ^c	
			MS (df=3)	F	MS (df=2)	F	MS (df=1)	F
Verbal Emphasis	VE, Sc	36.049	92.905	2.577	126.114	3.498	.117	.003
	VE, Pd	31.827	80.553	2.531	115.524	3.630	5.385	.169
Social Structure	SS, Pa	22.115	37.653	1.703	41.208	1.863	.486	.022
	SS, L	20,520	59.737	2.911	63.619	3.100	4,504	.219
	Hy, Pa	23,499	75.392	3.208	98.163	4.177	164.396	6.996
	Hy, L	21,541	99.630	4.625	118.630	5.507	205.887	9.558
	Pa, L	21,540	83.926	3.896	107.298	4.981	172.186	7.994
	Pa, R	23.606	74.475	3.155	91.352	3.870	165.710	7.020
Emo- tional Climate	EC, Pa	37.593	46.150	1.228	61.744	1.642	.233	.006
	EC, R	31.753	52.850	1.664	57.575	1.813	18.785	.592
	EC, L	33.982	9.642	.284	8.161	.240	10.564	.311
	EC, K	36.638	16.028	.437	13.956	.381	6.949	.190
	EC, Hy	34.497	38.369	1.112	54.149	1.570	59.549	1.726
	Pa, L	39.979	131.643	3.293	110.164	2.756	100.774	2.521
	Pd, R	37.749	183.821	4.870	162.261	4.298	263.882	6.990
	Pd, Ho	41.215	170.509	4.137	193.473	4.694	.655	.016
	Hy, R	38.317	156.880	4.094	122.255	3.191	176.554	4.608
	MTAI, R	38.468	149.068	3.875	117.501	3.054	172.695	4.489
	MTAI, Pd	42.087	115.939	2.755	122.187	2.903	192.895	4.583
	MTAI, Hy	40.982	101.871	2.486	87.346	2.131	93.999	2.294
RSSR Teacher Reported Group Activ.	MTAI, K	42.082	89.578	2.129	50.244	1.194	60.122	1.429
	BTOI, Ho	87.450	275.623	3.152	406.855	4.652	91.445	1.046
	Ideal, Pa	87.910	214.810	2.444	308.786	3.512	531.258	6.043
	F, Pa	90.552	271.046	2.993	397.435	4.389	668.371	7.381
	T, Pa	44.328	46.138	1.041	66.855	1.508	49.667	1.120

a. Hypothesis 1: There are no differences between control and experimental groups in means and regressions, jointly.

b. Hypothesis 2: There is no difference between control and experimental groups in regression of posttraining measure on pretraining measures.

c. Hypothesis 3: There is no difference in means between control and experimental groups when pretraining measures are controlled.

Appendix D

Schedule of Lectures and Skill Practices
Used in the Training Sessions

	<u>Theory</u>	<u>Skill Practice</u>
Sunday	Orientation	Effect of group cohesiveness, Experience as a source of data (Johnny Rocco Case)
Monday	Task and Maintenance Functions	Group Discussion
Tuesday	Group Goals	Clear and unclear goals
Wednesday	One and Two Way Communication	Discovering Feelings (Gestalt Therapy Exercise)
Thursday	Problem Solving (after Waller)	Role Play--Parent critical of schools
Friday	Problem Solving (after Gibb)	Role Play--TBA committee to raise funds
Saturday	Listening Skills	Role Play and group discussion reflecting feeling

Appendix D

Schedule of Lectures and Skill Practices

Used in the Training Sessions

Sunday	Task Home Application
Monday	Group Cohesiveness
Tuesday	Force-Field Analysis
Wednesday	Rationale of laboratory Training (Group Discussion)
Thursday	Listening Skills
Friday	Taking Home Relations Skills to the Classroom

Appendix D

Schedule of Lectures and Skill Practices
Used in the Training Sessions

	<u>Theory</u>	<u>Skill Practice</u>
Monday	Orientation	Effect of group cohesiveness, Experience as a source of data (Johnny Rocco Case)
Tuesday	Task and Maintenance Functions	Group discussion
Wednesday	Group Goals	Clear and unclear goals
Thursday	One and Two Way Communication	Discovering feelings (Gestalt Therapy Exercise)
Friday	Problem Solving (after Wallen)	Role Play--Parent critical of schools
Monday	Problem Solving (after Gibb)	Role Play--TEA committee to raise funds
Tuesday	Listening Skills	Role Play and group discussion reflecting feeling
Wednesday	Hidden Agenda Group Cohesiveness Leadership and Membership Force-Field Analysis	
Thursday		
Friday		
Monday		
Tuesday	Back Home Application of	
Wednesday	Force-Field Analysis	
Thursday	Rationale of Laboratory Training (Group Discussion)	
Friday	Taking Human Relations Skills to the Classroom	

Appendix D

Instructions for Scoring OSCAR²

For the first set of items, Block 6, which contributes to the 50 Grand Total at the bottom of Page 1, scores for each item or group of items were transferred from the observer's card to the scoring sheet for Observation 1, Observation 2, etc., and totaled across the page. (The columns labeled "T" after each single observation, may be disregarded. These entries were inserted for computing reliability coefficients.)

A total score for S 13-11 is available; also a total score for K₁ and K₂-K₃ (K₂ through K₃). In the total column at the right, the ratio of K₁ divided by K₂-K₃ should be found. K₁ is a single total like line 1 in this block of items.

Next a T score is computed for the totals wherever a T follows on the scoring sheet.

Appendix E

Finally, for Instructions for Scoring the Observation Schedule and Record are totaled and divided by 3. The negative sign at the final T for the block shows the direction of Observation Schedule and Record according to results of a factor analysis by Henry and Miller (1956).

Blocks 7 and 9 are recorded similarly, with a ratio or total computed where indicated, before finding a T score. In Block 7, the three T scores are totaled and divided by three, giving a T with a positive sign. In Block 9, the two T scores are added and divided by two, giving a T with a negative sign. Finally, the three T scores for Blocks 6, 7, and 9 are added, with regard to sign; 50 is added; this sum divided by three, and 50 added again, resulting in a single T score for the 50 Grand Total.

The same procedure is followed on Page 2, with ratios and totals being computed before finding T scores. For the VI score, then T scores for Blocks 1, 8, and 10 are totaled, regarding sign; minus 50, divided by three, and 50 added.

The 33 score follows this same pattern.

This "plus and minus 50" is necessary because averaging positive and negative weightings of the blocks of items according to the actual analysis must be carried out in terms of deviation from zero.

Appendix E

Instructions for Scoring OSCAR^a

For the first set of items, Block 6, which contributes to the EC Grand Total at the bottom of Page 1, scores for each item or group of items were transferred from the observer's card to the scoring sheet for Observation 1, Observation 2, etc., and totaled across the page. (The columns labeled "T" after each single observation, may be disregarded. These entries were inserted for computing reliability coefficients.)

A total score for S 10-11 is available; also a total score for K6 and K2-K6 (K2 through K6). In the total column at the right, the ratio of K6 divided by K2-K6 should be found. K7 is a single total like line 1 in this block of items.

Next a T score is computed for the totals wherever a T follows on the scoring sheet.

Finally, for Block 6, the three T scores were totaled and divided by 3. The negative sign at the final T for the block shows the direction of weighting of this block of items according to results of a factor analysis by Medley and Mitzel (Table 2, 1958).

Blocks 7 and 9 are recorded similarly, with a ratio or total computed where indicated, before finding a T score. In Block 7, the three T scores are totaled and divided by three, giving a T with a positive sign. In Block 9, the two T scores are added and divided by two, giving a T with a negative sign. Finally, the three T scores for Blocks 6, 7, and 9 are added, with regard to sign; 50 is added; this sum divided by three, and 50 added again, resulting in a single T score for the EC Grand Total.

The same procedure is followed on Page 2, with ratios and totals being computed before finding T scores. For the VE score, then T scores for Blocks 1, 8, and 10 are totaled, regarding sign; minus 50, divided by three, and 50 added.

The SS score follows this same pattern.

This "plus and minus 50" is necessary because averaging positive and negative weightings of the blocks of items according to the factor analysis must be carried out in terms of deviations from zero.

a. Developed by Mrs. Ruth M. Soar.

1960

Appendix E

OSCAR Scoring Sheet^a

Case No. _____

	Obs.1	T	Obs.2	T	Obs.3	T	Obs.4	T	Obs.5	T	Total	T
6. S10-11 Tot.		T...		T...		T...		T...		T...		T...
K 6.....												
K2-K6.....												
K6/K2-K6...		T...		T...		T...		T...		T...		T...
K7.....		T...		T...		T...		T...		T...		T...
Total T....												
÷ 3.....		T+		T+		T+		T+		T+		T+
7. S5-6-7 Tot.		T...		T...		T...		T...		T...		T...
K1		T...		T...		T...		T...		T...		T...
K2												
K2/K2-K6...		T...		T...		T...		T...		T...		T...
Total T....												
÷ 3		T+		T+		T+		T+		T+		T+
9. F1-4 Tot...		T...		T...		T...		T...		T...		T...
S8-9 Tot...		T...		T...		T...		T...		T...		T...
Total T....												
÷ 2.....		T+		T+		T+		T+		T+		T+
VE Total...												
EC Grand Total												
+50...												
÷ 3.....												
+50...		T...		T...		T...		T...		T...		T...

a. Developed by Mrs. Ruth M. Soar.

Appendix F

Oscar Scoring Sheet - 2

Case No.

[illegible]

Appendix F

Empirical Weights for the Russell Sage Social Relations Test

Profile of Group Performance

Planning stage

Participation	3	4	6	7	8
	1	2	3	4	5

Communication	3	5	7	8	9
	1	2	3	4	5

Ideas	0	0	7	8	9
	1	2	3	4	5

Plan	3	5	8*	8	7
	1	2	3	4	5

Appendix F

Involvement	3	5	6	6	7
	1	2	3	4	5

Empirical Weights for the

Russell Sage Social Relations Test

Autonomy (record as A, J, or P)	1P, 1R, 1A, 2P, 2R, 2A, 3P, 3R, 3A, 4P, 4R, 4A, 5
---------------------------------	---

Operation stage

Involvement	0	2	4	5	7
	1	2	3	4	5

Atmosphere	8	5	1	8	3	7	2	5	4	6
	1P, 1E, 2P, 2E, 3P, 3E, 4P, 4E, 5P, 5E									

Activity	0	5	4	5	7
	1	2	3	4	5

Success	4	3	5	6	7
	1	2	3	4	5

a. Personal communication, D. M. Medley, 1959.

Appendix F

Empirical Weights for the Russell Sage Social Relations Test ^aProfile of Group PerformancePlanning stage

Participation	3	4	6	7	8
	1	2	3	4	5

Communication	3	5	7	8	8
	1	2	3	4	5

Ideas	0	0	7	8	8
	1	2	3	4	5

Plan	3	5	8	8	7
	1	2	3	4	5

Involvement	3	5	6	6	7
	1	2	3	4	5

Autonomy (record as A, R, or P)	3	0	3	5	4	7	7	4	7	7	8	9
	1P,	1R,	1A,	2P,	2R,	2A,	3P,	3R,	3A,	4R,	4A,	5

Operation stage

Involvement	0	2	4	5	7
	1	2	3	4	5

Atmosphere	3	5	1	8	3	7	3	5	4	6
	1H,	1E,	2H,	2E,	3H,	3E,	4H,	4E,	4N,	5

Activity	0	5	4	5	7
	1	2	3	4	5

Success	4	2	5	6	7
	1	2	3	4	5

a. Personal communication, D. M. Medley, 1959.

Appendix G

Table 87

Attitude Pre- and Posttraining Data
for the Experimental Group
(N=26)

Teacher Number	SEDJ		MBAI		Survey of Educational Leadership Practices		Actual		Discrepancy	
	Pre		Post		Ideal		Pre		Post	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	129	145	13	10	35	29	25	23	3	7
2	121	139	11	30	31	38	22	18	6	20
3	126	125	8	38	28	32	31	30	3	2
4	137	133	71	65	42	45	42	45	0	3
5	132	130	20	4	36	39	15	25	31	13
6	138	108	32	28	34	33	19	29	15	5
7	114	116	48	61	33	35	23	26	15	2
8	129	134	45	55	30	30	15	21	29	5
9	120	107	0	1	37	47	24	31	14	16
10	122	133	44	30	33	44	18	14	18	25
11	129	131	30	30	33	33	21	21	11	16
12	139	185	32	30	30	30	34	34	6	7
13	126	126	30	30	30	30	19	19	14	13
14	120	127	30	30	30	30	20	20	12	24
15	106	127	60	33	33	39	11	10	22	29
16	122	156	11	25	41	43	27	13	16	32
17	131	120	12	38	40	40	11	7	25	34
18	103	114	34	44	33	43	33	11	3	29
19	123	140	22	75	30	46	11	12	19	28
20	114	140	53	46	42	44	31	37	11	7
21	114	125	0	29	40	36	10	20	36	16
22	114	133	54	61	40	37	23	35	17	2
23	127	122	57	64	30	38	32	16	18	22

Appendix G

Pretraining and Posttraining Data

for the Experimental and Control Groups

Appendix G

Table 57

Attitude Pre- and Posttraining Data
for the Experimental Group
(N=23)

Teacher Number	BTOI		MTAI		Survey of Educational Leadership Practices					
	Pre	Post	Pre	Post	Ideal		Actual		Discrepancy	
					Pre	Post	Pre	Post	Pre	Post
1	129	145	13	10	35	29	28	22	7	7
2	121	139	11	30	31	38	22	18	9	20
3	126	125	-5	28	28	32	31	30	-3	2
4	137	138	76	65	42	43	42	35	0	8
5	122	110	20	4	36	39	15	26	21	13
6	118	108	-32	28	34	38	19	29	15	9
7	116	116	48	61	38	35	23	26	15	9
8	129	134	46	55	40	39	15	31	25	8
9	120	107	0	-10	39	47	24	31	15	16
10	122	138	44	30	33	44	18	19	15	25
11	129	121	10	-7	32	37	21	21	11	16
12	138	135	32	70	40	41	34	34	6	7
13	125	136	14	30	37	37	23	19	14	18
14	126	127	55	98	34	44	22	20	12	24
15	108	112	60	35	38	39	11	10	27	29
16	132	155	-11	25	41	45	27	13	14	32
17	121	130	61	58	40	42	11	7	29	35
18	103	114	34	44	38	40	33	11	5	29
19	153	141	22	73	30	40	11	12	19	28
20	134	140	53	46	42	44	31	37	11	7
21	114	125	0	29	40	36	10	20	30	16
22	114	113	54	86	40	37	23	35	17	2
23	127	122	57	64	30	38	12	16	18	22

Appendix G

Table 58

Attitude Pre- and Posttraining Data
for the Control Group
(N=28)

Teacher Number	BTOI		MTAI		Survey of Educational Leadership Practices					
	Pre	Post	Pre	Post	Ideal		Actual		Discrepancy	
					Pre	Post	Pre	Post	Pre	Post
1	107	125	36	55	35	40	21	21	14	19
2	130	124	92	84	32	31	28	28	4	3
3	121	110	59	69	40	41	13	18	27	23
4	141	134	67	11	39	41	30	33	9	8
5	134	135	9	13	41	44	25	14	16	30
6	133	139	34	18	34	31	25	23	9	8
7	86	98	44	21	36	38	22	17	14	21
8	133	140	-5	47	46	38	12	29	34	9
9	130	132	70	66	34	37	28	24	6	13
10	112	112	-16	-25	36	41	23	14	13	27
11	117	112	9	37	43	38	8	26	35	12
12	121	120	10	11	35	38	16	12	19	26
13	115	124	-47	-22	29	33	15	14	14	19
14	123	133	8	22	36	42	19	22	17	20
15	128	133	94	81	44	47	18	9	26	38
16	164	157	69	68	38	33	21	15	17	18
17	121	125	53	35	46	41	13	18	33	23
18	129	148	52	36	36	45	24	14	12	31
19	99	103	52	12	34	41	27	29	7	12
20	150	138	65	79	35	36	31	34	4	2
21	110	110	-15	10	42	39	23	26	19	13
22	120	121	27	43	41	39	26	24	15	15
23	126	113	48	51	33	37	32	34	1	3
24	118	140	105	106	42	44	0	26	42	18
25	127	123	12	8	42	41	21	26	21	15
26	115	119	17	2	23	26	29	24	-6	2
27	120	123	10	16	42	42	8	8	34	34
28	139	142	-21	-12	24	29	25	29	-1	0

Appendix G

Table 59

Pretraining Scores of the Experimental Group
on Nineteen Scales of the Minnesota
Multiphasic Personality Inventory (N= 23)

Teacher Number	MMPI Scales									
	K	F	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc
1	62	48	46	46	49	43	47	44	45	47
2	59	48	46	49	47	43	41	47	46	49
3	66	46	48	40	56	53	59	56	51	57
4	62	50	52	47	68	50	49	62	45	49
5	51	48	42	51	57	50	39	56	46	46
6	53	46	39	47	45	50	43	53	45	47
7	66	44	66	47	73	50	55	44	51	54
8	72	50	54	59	64	62	49	50	58	55
9	49	48	39	51	49	48	24	62	48	43
10	68	53	60	59	64	62	34	65	58	61
11	55	46	70	53	70	69	57	50	50	60
12	59	53	54	46	56	39	51	53	41	54
13	68	48	48	47	59	69	51	56	56	60
14	59	46	52	44	54	53	41	53	51	51
15	55	46	47	46	51	57	67	44	42	44
16	72	46	56	46	54	67	53	56	60	64
17	62	46	61	65	58	57	67	59	69	59
18	55	48	62	55	63	60	51	59	50	54
19	64	46	46	49	57	55	49	50	50	55
20	68	58	56	47	66	64	45	56	53	57
21	57	53	58	51	63	46	47	47	56	57
22	51	46	41	53	46	43	53	41	40	54
23	51	50	60	49	71	53	34	50	56	57

Table 59 (Cont.)

Teacher Number	MMPI Scales								
	Si	Ma	L	A	R	ES	Ho	Pv	Ta
1	60	53	73	38	55	52	45	50	47
2	61	48	56	43	58	57	38	41	38
3	56	38	50	41	51	58	35	42	41
4	47	40	50	35	67	56	29	29	27
5	49	45	50	50	51	56	43	51	47
6	43	60	43	42	41	62	42	42	41
7	40	69	66	41	53	50	47	36	41
8	56	45	53	38	74	56	29	31	28
9	62	35	43	51	53	53	36	44	39
10	50	48	53	42	51	64	35	41	36
11	51	65	56	48	51	40	50	60	56
12	45	58	43	37	58	57	35	42	37
13	47	48	46	42	53	52	28	45	35
14	50	60	50	46	53	50	45	51	48
15	49	45	50	44	47	57	46	52	49
16	51	53	43	38	62	52	33	39	35
17	47	63	53	47	47	54	47	54	50
18	53	48	53	48	51	50	47	50	48
19	52	50	66	40	53	49	35	50	41
20	44	50	50	38	60	60	35	47	40
21	55	43	46	53	48	59	52	48	40
22	55	45	40	50	48	69	57	41	49
23	62	53	43	53	60	52	39	53	45

Appendix G

Table 60

Posttraining Scores of the Experimental Group
on Nineteen Scales of the Minnesota
Multiphasic Personality Inventory (N=23)

Teacher Number	MMPI Scales									
	K	F	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc
1	64	48	50	49	56	50	47	56	45	49
2	51	48	44	47	52	41	34	41	45	40
3	49	48	54	53	52	46	53	53	51	54
4	75	48	72	63	79	64	53	62	60	61
5	57	46	44	46	50	53	34	50	48	51
6	59	48	56	44	56	53	48	50	48	55
7	64	44	56	42	70	53	49	53	46	54
8	64	53	48	51	57	62	51	53	46	52
9	49	48	37	46	45	46	28	53	43	38
10	66	44	62	51	57	48	47	53	51	54
11	62	46	74	53	68	71	45	50	40	58
12	62	48	50	49	57	48	55	62	46	55
13	70	48	60	51	63	53	45	50	53	60
14	66	44	52	38	63	57	45	62	43	52
15	64	46	52	48	56	62	53	53	48	51
16	59	44	50	51	59	55	45	56	63	60
17	61	50	80	82	55	60	67	65	79	74
18	48	46	48	47	59	57	49	56	46	44
19	59	53	50	47	47	53	47	59	48	46
20	62	50	54	53	64	64	43	53	51	47
21	49	64	48	51	52	43	45	44	50	66
22	59	50	52	51	47	55	48	44	43	44
23	49	46	54	51	59	48	39	62	55	49

Table 60 (Cont.)

Teacher Number	MMPI Scales								
	Si	Ma	L	A	R	Es	Ho	Pv	Ta
1	53	53	70	36	53	52	38	47	41
2	64	50	53	43	53	56	42	48	44
3	62	43	43	51	51	48	49	51	50
4	45	48	60	36	69	52	31	34	30
5	43	53	43	48	46	53	46	41	43
6	41	58	43	42	39	68	42	39	40
7	40	60	63	36	51	53	47	35	40
8	56	43	53	37	65	62	35	31	31
9	61	35	50	43	51	52	38	42	39
10	42	43	50	37	46	52	31	25	25
11	50	70	56	50	53	47	45	50	47
12	44	55	50	35	55	56	35	35	33
13	48	53	40	40	62	59	33	35	33
14	46	58	53	36	58	62	33	34	32
15	51	60	53	37	55	65	41	43	41
16	55	63	40	48	53	50	40	56	48
17	55	65	50	52	45	53	50	57	53
18	53	45	50	48	53	49	46	53	49
19	61	45	60	41	51	52	49	48	48
20	45	50	53	37	60	62	38	47	41
21	63	48	43	51	48	63	56	47	52
22	49	43	50	44	44	64	49	35	41
23	56	58	40	47	53	45	46	53	49

Appendix G

Table 61

Pretraining Scores of the Control Group
on Nineteen Scales of the Minnesota
Multiphasic Personality Inventory (N=28)

Teacher Number	MMPI Scales									
	K	F	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc
1	57	44	42	44	54	48	28	62	43	44
2	53	48	62	51	59	43	39	59	41	44
3	49	50	39	57	52	48	47	46	45	52
4	62	46	56	51	59	62	39	53	60	54
5	57	46	46	51	45	41	41	50	45	47
6	72	46	64	53	70	69	49	53	56	58
7	59	48	44	51	54	55	37	59	55	54
8	49	53	44	40	49	43	59	50	37	40
9	61	44	56	57	63	60	41	65	46	54
10	49	62	52	65	56	57	66	56	51	64
11	53	58	56	59	54	69	43	62	65	51
12	61	50	70	59	72	60	37	56	63	63
13	48	62	64	59	61	48	59	56	60	60
14	59	50	52	53	54	69	39	56	50	59
15	66	48	50	40	57	53	45	59	46	51
16	70	44	48	44	63	62	55	53	56	58
17	49	50	62	67	54	53	30	53	54	56
18	59	50	49	68	51	48	67	59	60	51
19	53	60	39	69	43	64	57	59	56	52
20	61	44	48	48	58	53	39	50	53	46
21	55	46	48	38	54	55	24	65	45	47
22	64	46	70	67	82	71	43	56	55	51
23	70	53	56	49	59	64	37	59	58	57
24	59	46	52	42	56	53	45	56	46	53
25	62	44	56	47	61	54	45	56	48	47
26	57	53	52	44	54	57	41	67	50	60
27	61	46	49	51	62	59	69	59	66	57
28	58	44	44	44	53	43	67	44	54	48

Table 61 (Cont.)

Teacher Number	MMPI Scales								
	Si	Ma	L	A	R	Es	Ho	Pv	Ta
1	42	63	53	36	53	54	42	44	42
2	61	48	50	40	51	48	45	47	45
3	64	53	50	48	53	54	43	51	47
4	56	45	56	41	53	50	36	45	40
5	51	40	53	48	46	54	36	41	37
6	48	58	43	37	55	50	40	35	36
7	47	40	53	47	46	56	53	45	49
8	38	55	36	38	44	58	42	39	40
9	53	45	60	38	58	58	43	44	43
10	64	48	50	51	53	48	56	50	53
11	52	65	36	53	46	50	49	51	50
12	64	59	50	53	53	39	40	69	55
13	64	43	53	55	46	38	49	53	51
14	48	50	53	43	51	54	46	51	48
15	38	53	43	41	51	60	31	29	28
16	46	60	53	40	55	62	38	31	33
17	61	45	40	51	46	49	42	51	36
18	55	40	53	44	53	63	35	54	43
19	48	55	43	57	48	59	61	41	52
20	45	43	50	42	55	57	32	34	31
21	50	50	50	42	48	59	42	51	46
22	46	50	53	42	55	48	29	35	30
23	51	45	56	37	65	62	26	36	29
24	52	50	46	41	48	63	33	42	36
25	43	63	63	37	46	57	33	47	39
26	44	63	46	47	36	53	60	54	58
27	45	70	53	51	51	52	48	55	52
28	40	45	43	41	43	57	40	46	42

Appendix G

Table 62

Posttraining Scores of the Control Group
on Nineteen Scales of the Minnesota
Multiphasic Personality Inventory (N=28)

Teacher Number	MMPI Scales									
	K	F	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc
1	55	46	44	44	52	52	34	59	43	46
2	55	48	54	47	59	53	39	65	45	40
3	53	50	48	53	59	50	34	53	48	51
4	66	48	58	51	59	60	39	53	61	57
5	53	44	48	51	50	39	34	65	48	60
6	66	53	72	55	77	60	43	67	60	63
7	49	50	37	47	45	46	45	47	43	46
8	62	53	46	42	47	55	61	41	43	51
9	72	44	54	40	61	55	61	53	50	57
10	48	60	48	65	59	76	47	76	60	80
11	49	53	52	55	52	50	37	67	61	63
12	48	53	78	55	72	55	34	67	66	67
13	46	48	39	46	52	43	32	53	48	44
14	46	53	54	53	63	67	32	62	45	49
15	70	46	52	46	59	60	47	56	53	52
16	74	46	50	46	61	67	55	56	53	55
17	62	48	62	53	63	62	34	50	56	60
18	64	46	57	63	62	53	57	65	60	55
19	53	60	42	63	47	60	57	56	60	54
20	68	44	46	46	56	55	41	50	53	51
21	62	44	48	47	56	55	37	44	45	23
22	64	55	62	49	72	69	37	53	55	57
23	64	50	46	51	50	57	37	53	53	55
24	61	46	52	40	59	50	49	53	50	49
25	61	46	58	44	59	41	46	56	43	49
26	46	58	42	42	33	48	45	53	40	44
27	64	48	52	51	62	62	74	62	64	53
28	57	50	49	48	53	48	73	62	54	53

Table 62 (Cont.)

Teacher Number	MMPI Scales								
	Si	Ma	L	A	R	Es	Ho	Pv	Ta
1	37	60	50	38	39	58	39	44	40
2	61	45	56	37	55	49	42	44	42
3	63	48	50	49	60	52	38	42	39
4	58	50	46	41	55	54	38	50	43
5	58	43	46	53	46	49	39	47	42
6	51	55	46	40	53	54	39	41	39
7	51	43	53	47	44	60	60	50	56
8	41	58	36	36	48	60	39	35	36
9	47	50	53	33	51	54	39	44	40
10	56	81	56	63	55	50	77	57	69
11	60	56	36	58	51	52	57	57	58
12	70	68	53	67	36	37	64	73	71
13	42	48	50	41	29	34	35	42	37
14	49	83	43	49	48	49	56	54	56
15	38	48	43	35	48	63	32	29	29
16	43	60	56	33	51	62	35	32	32
17	50	50	43	43	60	53	39	39	38
18	47	45	46	40	53	63	40	60	49
19	56	55	46	58	41	60	60	50	56
20	43	55	56	37	55	56	31	35	31
21	45	53	56	40	41	58	47	53	50
22	46	68	60	42	53	48	31	36	32
23	56	43	56	49	58	58	33	34	32
24	50	58	50	37	44	63	32	39	34
25	44	53	56	41	41	60	35	38	35
26	50	63	40	50	41	52	70	60	67
27	42	63	50	49	43	57	43	60	51
28	43	40	43	44	38	62	46	48	46

Appendix G

Table 63

Classroom Behavior Pre- and Posttraining Data
for the Experimental Group (N=23)

Teacher Number	Observation Schedule and Record						Social				Group Activities			
	Emotional Climate		Verbal Emphasis		Social Structure		Social Relations Test		Teacher Reported		Teacher Reported		Staff Reported	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	50	60	61	48	53	49	53	50	56	53	64	46	64	46
2	53	55	49	43	42	50	63	62	58	63	63	73	63	73
3	57	52	56	44	54	48	56	49	54	58	68	57	68	57
4	50	48	53	42	53	48	51	44	53	45	55	52	55	52
5	55	41	43	50	47	59	56	34	38	35	44	49	44	49
6	51	40	54	44	35	45	65	58	52	49	58	55	58	55
7	50	53	43	45	47	45	56	53	50	51	58	62	58	62
8	45	48	65	55	40	52	66	43	59	50	44	52	44	52
9	40	36	47	45	47	38	51	48	43	38	66	62	66	62
10	53	47	63	65	48	54	58	64	35	27	51	52	51	52
11	56	49	57	57	38	55	47	49	56	58	42	46	42	46
12	50	42	51	50	61	61	42	48	45	50	55	52	55	52
13	54	49	61	53	45	53	58	40	59	62	61	59	61	59
14	56	55	54	45	55	50	41	57	52	54	68	62	68	62
15	48	40	43	42	57	50	60	55	46	41	68	59	68	59
16	52	46	48	54	39	52	43	53	52	55	63	57	63	57
17	54	44	43	41	48	54	46	56	54	41	48	55	48	55
18	42	46	40	63	49	56	46	60	47	51	60	62	60	62
19	55	54	53	58	43	55	56	48	64	58	42	46	42	46
20	41	42	54	53	43	52	49	51	32	35	42	59	42	59
21	53	55	56	38	43	48	49	50	50	52	50	66	50	66
22	47	54	52	45	50	46	68	66	43	53	54	57	54	57
23	57	53	46	43	48	52	32	38	50	60	58	66	58	66

Appendix G

Table 64

Classroom Behavior Pre- and Posttraining Data
for the Control Group (N=28)

Teacher Number	Observation Schedule and Record						Social Relations		Group Activities			
	Emotional Climate		Verbal Emphasis		Social Structure		Test	Pre	Post	Teacher Reported		Staff Reported
	Pre	Post	Pre	Post	Pre	Post				Pre	Post	
1	52	48	48	44	49	50	62	32	42	43	44	42
2	50	48	54	50	62	52	53	54	57	52	51	42
3	49	51	47	41	56	43	51	51	45	35	42	49
4	52	41	53	54	42	50	44	53	65	62	39	37
5	49	40	49	54	50	54	60	45	45	45	42	49
6	59	58	62	57	46	54	48	41	63	49	39	46
7	51	53	62	52	43	48	44	48	74	69	39	31
8	51	43	58	51	53	60	71	64	50	40	50	37
9	59	66	52	57	37	41	56	56	68	73	55	69
10	54	41	55	52	42	56	48	43	68	66	53	46
11	56	47	58	66	56	54	46	39	59	58	42	46
12	44	51	56	50	42	48	41	68	41	45	33	42
13	53	55	52	46	48	51	51	41	53	54	51	55
14	64	51	57	54	36	46	60	57	61	56	58	49
15	64	55	53	58	48	48	73	57	47	43	53	37
16	60	61	63	59	45	50	48	73	49	49	48	42
17	58	55	43	41	51	52	53	44	45	47	55	52
18	59	56	46	43	45	43	35	36	35	38	39	37
19	58	48	61	52	43	50	57	45	50	43	51	55
20	58	49	43	40	59	53	59	70	42	41	61	55
21	49	55	54	46	36	38	53	37	52	43	53	42
22	54	56	62	57	32	38	37	50	54	55	51	42
23	58	66	44	40	44	42	53	62	57	58	54	42
24	63	60	60	59	53	49	41	52	38	66	44	31
25	54	47	39	49	46	44	58	54	32	31	51	49
26	49	41	55	58	43	50	38	46	48	47	51	52
27	56	56	42	35	48	50	50	59	50	48	50	31
28	57	41	44	50	53	53	29	27	38	50	58	42

Appendix H

Personal History Questionnaire

Directions: Please answer all questions as completely as possible.

1. What is your marital status?
2. For how many years have you been a teacher?
3. In how many different school systems have you been employed?
4. What is your present salary?
5. How many salary increases have you received in your teaching career?
6. How many years of post high school education have you completed? (Consider 30 semester credits or 45 quarter credits as equivalent to one year)

Appendix H

Questionnaires

7. At what institution did you do this work?
8. Do you hold a B.S. or equivalent degree? Yes No
 (If no, please give appropriate response)
9. Have you ever had an opportunity to be employed in same field other than teaching? Yes No
10. Did you accept this opportunity? Yes No
11. Under what conditions would you accept employment in a field other than teaching?
12. In what community groups and activities do you participate?
13. Are you a member of your local teacher's association? Yes No
14. Are you a member of the ILA? Yes No
15. Are you a member of the NEA? Yes No
16. Do you regularly attend your local teacher's association meetings? Yes No
17. Do you belong to any other teacher's association? Yes No
 (If so, which one?)

Appendix H

Personal History Questionnaire

Directions: Please answer all questions as completely as possible.

1. What is your marital status? _____
2. For how many years have you been a teacher? _____
3. In how many different school systems have you been employed? _____
4. What is your present salary? _____
5. How many salary increases have you received in your teaching career? _____
6. How many years of post high school education have you completed? (Consider 30 semester credits or 45 quarter credits as equivalent to one year) _____
7. At what institution did you complete this work? _____
8. Do you hold a B.A. or equivalent? (Encircle appropriate response) Yes No
9. Have you ever had an opportunity to be employed in some field other than teaching? Yes No
10. Did you accept this opportunity? Yes No
11. Under what conditions would you accept employment in a field other than teaching? _____
12. In what community groups and activities do you participate? _____
13. Are you a member of your local teacher's association? Yes No
14. Are you a member of the TEA? Yes No
15. Are you a member of the NEA? Yes No
16. Do you regularly attend your local teacher's association meetings? Yes No
17. Do you belong to any other teacher's association? Yes No
(If so, which ones?) _____

18. Have you ever held office in your local teacher's association? (If so, what were your responsibilities? Yes No
19. What magazines, articles, or books have you read in the past month which have had a direct bearing on your teaching? (If none, write none in the blank.) _____
20. a. What grade level would you most desire to teach? _____
 b. For what reasons would you like this grade level? _____
 c. Are you teaching this grade at present? _____
 d. Have you ever taught this grade? _____
21. Briefly describe several enjoyable experiences of your last two week's work. (If you cannot remember any, write none.)
22. What have you taught (or are presently teaching) which you dislike to teach?
23. a. List the occupations for which you considered preparing in college. Number these in order of your preference.
 b. What specific reasons contributed to your decision to become a teacher?
24. a. When you were growing up, what specific things did you enjoy about school?
 b. When you were growing up, what specific things did you dislike about school?
25. a. Name the professions in your five best friends are engaged.
 b. Do you think you are on an equal social level with these friends? _____
 c. On an economic level? _____
 d. Comments on b and c.
26. a. In your most recent talks with parents about students' problems, what were the specific issues discussed?
 b. Which of these, if any, do you consider it your duty to discuss with parents?

Appendix B

27. Since the beginning of this school year, what specific suggestions have you been given by your principal or superintendent regarding your teaching?

Directions

28. a. Would you welcome further supervision? _____

- b. Why the group activities that you complete during a given week. There is one page for each day of the week. You indicate
29. In case a teacher has one or more classes considerably larger than he considers the ideal size, do you think his attitude toward the children in these classes would be altered? In what ways?

of group activities. Start your record on the day that you receive this questionnaire and continue for the four days that follow. For example, if you receive this questionnaire on a Wednesday, indicate the date and make entries for that day on the page marked "Wednesday." Then on the next day make the entry on the page marked "Thursday," and likewise until the Friday, Monday and Tuesday pages are completed.

Appendix H

Log of Group Activities

Directions

On the following five pages are opportunities for you to indicate the group activities that you complete during a given week. There is one page for each day of the week. You indicate the date for which your entry applies. There may be some days when you have no group activities, other days would have a wide variety of group activities. Start your record on the day that you receive this questionnaire and continue for the four days that follow. For example, if you receive this questionnaire on a Wednesday, indicate the date and make entries for that day on the page marked "Wednesday." Then on the next day make the entry on the page marked "Thursday." and likewise until the Friday, Monday and Tuesday pages are completed.

Write a fuller description of one of these, indicating (a) what you as the teacher did to facilitate group activities; (b) how well the group functioned; (c) how well the objectives were fulfilled.

Name _____

Day of week: _____ Date _____

Number of different group activities entered into during the day _____

Give a brief description of these (subject area, no. of students involved; what happened).

1. _____

2. _____

3. _____

4. _____

5. _____

Appendix I

Laboratory Learnings

Write a fuller description of one of these, indicating (a) what you as the teacher did to facilitate group activities; (b) how well the group functioned; (c) how well the objectives were fulfilled.

Appendix I

Laboratory Learnings^a

Name _____

All of us at the Lab will work in many human relations situations--on a person-to-person basis with associates, superiors and subordinates; in small groups; and in large meetings.

Now that the Lab is nearly over, we think it will be valuable to know how some of the personal learnings are which have developed during our time together. These learnings, summarized, can help considerably in assessing this Lab, and in planning for future ones.

1. Things I think I understand better about human relations on the job:

2. Things I think I have learned to do, or how to do better:

Appendix I

3. Feelings I have about Laboratory Learnings situations which I think have changed or improved:

4. Changes which I would like to see made in my work situation at _____

5. Skills I think I have gotten at the Lab to aid in bringing about these changes:

a. Developed by Matthew B. Miles, Teachers College, Columbia Univ., N. Y. C., 1958.

Appendix I
Laboratory Learnings^a

Name _____

All of us at the Lab must work in many human relations situations--on a person-to-person basis with associates, superiors and subordinates; in small groups; and in large meetings

Now that the Lab is nearly over, we think it will be valuable to know what some of the personal learnings are which have developed during our time together. These learnings, summarized, can help considerably in assessing this Lab, and in planning for future ones.

1. Things I think I understand better about human relations on the job:

2. Things I think I have learned to do, or how to do better:

3. Feelings I have about myself in human relations situations which I think have changed or improved:

4. Changes which I would like to see made in my work situation at home:

5. Skills I think I have gotten at the Lab to aid in bringing about these changes:

a. Developed by Matthew B. Miles, Teachers College, Columbia Univ., N. Y. C., Mimeo., 1958.

Please think carefully about the learnings you have written on the first page, and answer the items below. Make a check on one of the five spaces on the line between each set of two words.

In general, I feel the learnings I wrote on the first page are

clear	_____	:	_____	:	_____	:	_____	:	_____	:	hazy
abstract	_____	:	_____	:	_____	:	_____	:	_____	:	concrete
vague	_____	:	_____	:	_____	:	_____	:	_____	:	explicit
definite	_____	:	_____	:	_____	:	_____	:	_____	:	uncertain
unrealistic	_____	:	_____	:	_____	:	_____	:	_____	:	practical
applicable	_____	:	_____	:	_____	:	_____	:	_____	:	not useful
precise	_____	:	_____	:	_____	:	_____	:	_____	:	indefinite
relevant	_____	:	_____	:	_____	:	_____	:	_____	:	not relevant
feasible	_____	:	_____	:	_____	:	_____	:	_____	:	impractical
confused	_____	:	_____	:	_____	:	_____	:	_____	:	lucid